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Production Reaches New High Record

Highest daily average estimated total production in 1928, week ended Dec. 29, 2,585,844 bbls. Lowest in 1928, May 19, 2,338,241 bbls.

Need for Quick Action on Conservation Measures Emphasized by Present Crude Oil Output and Future Prospects

By Andrew M. Rowley

Highest daily average estimated light oil production in 1928, week ended Dec. 29, 2,158,134 bbls. Lowest in 1928, Mar. 3, 1,927,713 bbls.

No better proof of the need for the petroleum industry to act quickly on the matter of holding crude oil production to market requirements is necessary than the record of the output of the fields of the United States during the past week considered in connection with present developments which assure a still further increase in production. A new high mark in daily average crude oil production over a period of a week was established last week when the output of all fields averaged practically 2,600,000 barrels daily. This is the greatest daily average for a week ever attained in the petroleum industry, the nearest approach being for the week ending July 30, 1927, when the Seminole Field in Oklahoma boosted the output for the entire country up to 2,587,105 barrels daily.

Not only has a higher production been reached than during 1927 but conditions facing the industry now are different. There is every evidence now production will continue to register increases for some time. California will show further gains due to developments at Santa Fe Springs and in other areas. West Texas is expected to approach or reach the 400,000 barrel-a-day mark during the latter part of this month if the recommended increased allowance for the Yates Pool is adopted. The decline in Oklahoma will be more than checked when drilling campaigns now planned reach the completion stage. Kansas is displaying activity, especially around Wichita. Undoubtedly there will be more development work in Michigan following recent discoveries in that State. And southeastern New Mexico will become a more important factor during 1929, probably, than it was last year.

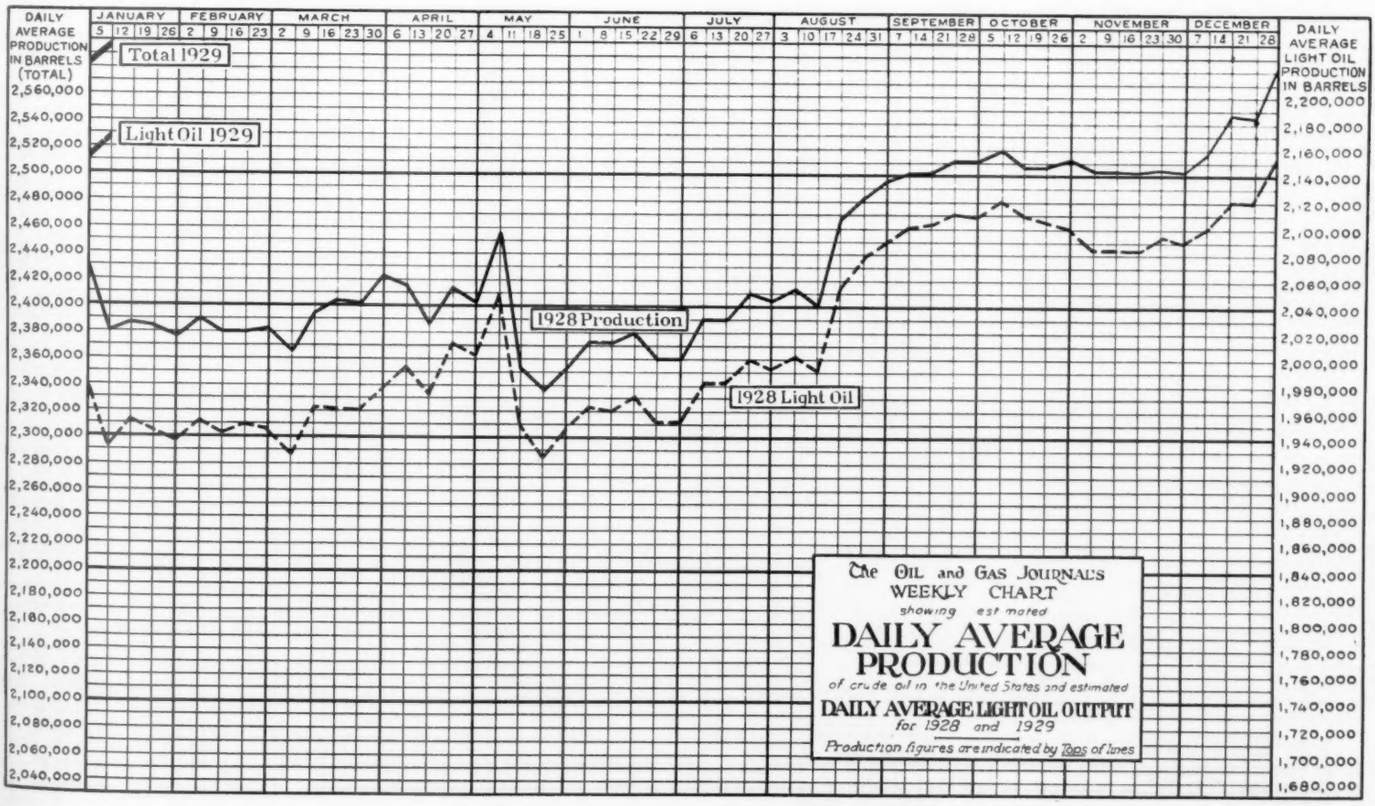
That leaders of the petroleum industry and government and state officials realize what this situation means is shown by the efforts now being made to adopt measures which will permit more effective co-operation in the development of flush pools and potential areas. It probably is not going too far to say prosperity during 1929 is dependent to a very large extent upon the success of these efforts.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of light and heavy gravity oil in the United States for week ended January 5, and a comparison with the previous week follows:

	Jan. 5		Dec. 29	
	Light	Heavy	Light	Heavy
Oklahoma—				
Tonkawa	11,430		11,465	
Burbank	24,270		24,085	
Other Osage Fields	26,245		26,215	
St. Louis-Pearson	137,905		138,270	
Cushing and Shamrock	20,985		20,835	
Bristow	19,560		19,640	
Allen	27,735		27,955	
Seminole	277,890		282,630	
Northern Miscellaneous	114,630		113,270	
Southern Fields	58,770		59,015	
Total Oklahoma	719,420		723,380	
West Texas—				
Hendricks	160,663		155,520	
Yates	73,106		72,598	
Remainder	119,504		117,542	
Total West Texas	353,273		345,660	
North Louisiana	30,390	6,020	31,035	6,000
Arkansas	28,195	51,990	27,715	52,320
North Central Texas	140,865		141,369	
Texas Panhandle	58,605		58,695	
East Central Texas	21,977		22,964	
Kansas	97,135		98,145	
Total Mid-Continent Area	1,449,860	58,010	1,448,963	58,320
Gulf Coast		138,265		138,642
Southwest Texas		42,304		38,748
Eastern	115,000		116,000	
Rocky Mountain Area	78,102		73,671	
California—				
Santa Fe Springs	120,500		110,000	
Long Beach	182,000		185,000	
Torrance	2,000	13,500	2,000	13,500
Huntington Beach	50,000		50,500	
Elwood	14,750		15,000	
Inglewood	16,500	11,500	16,500	11,000
Ventura Avenue	50,500		50,500	
Seal Beach	29,000		29,000	
Remainder of State	61,000	167,000	61,000	167,500
Total California	526,250	192,000	519,500	192,000
Total United States	2,169,212	430,579	2,158,134	427,710
Grand Total	2,599,791		2,585,844	

Total Increase, 13,947 Bbls.; Light Oil Increase, 11,078 Bbls.



Continued Weakness in Gasolines

Natural Gasolines Again Reduced in Oklahoma. Kerosene Prices Lower. Fuel Oil and Gas Oil Steady

By C. O. Willson

Continued weakness in refinery gasolines, lower prices in natural gasolines, another fractional decline in kerosene prices with steady prices in other products summarizes the Oklahoma (Group 3) market for the week ending Tuesday, January 8. The only advances recorded were in steam refined cylinder stocks and bright stocks.

Refinery operators in Oklahoma during the week had additional evidence of low priced material from other refining areas both inside and outside the Mid-Continent group but for the most part the larger refiners in the State held to the price levels established a week ago. These refiners are quoting 8 cents on 58-60 U. S. Motor gasoline to the trade and report a fair movement on that basis.

A somewhat panicky condition exists among a few of the remaining operators in Oklahoma and adjoining areas and a wide variation in gasoline prices was apparent in the day-to-day quotations during the week. Some of the refinery owners apparently believe that further reductions in gasoline prices are assured and they are endeavoring to anticipate this development by selling as low as 7¼ cents for spot shipment and 7 cents for delivery over a month. They insist on moving their gasoline as it becomes available at their plants and the buyers with this condition are having no difficulty in obtaining concessions.

In the natural gasoline end, the manufacturers have seen their general market on their principal Grade AA drop to 5¾ cents with Grade C freely available in Oklahoma and North Texas at 5¼ cents. As in the refinery gasoline market a few of the manufacturers have been unduly excited regarding their price situation. Two instances are known in which the sellers sold material one-quarter to one-half cent below the prevailing day-to-day market in their anxiety to keep their output moving, only to discover a day or two later that prices did not decline as they expected.

REFINED MARKET BAROMETER

The first week of the new year in refined markets brought a continuance of the trends apparent as the old year closed. Weakness in refinery gasolines was reported from all refining areas, although price reductions were not as general as they were the previous weeks. The decline in natural gasoline prices east of the Rocky Mountains continued and quotations are now the lowest since the late spring of 1928. Reductions materialized when any price changes were made in kerosene. All distillates suitable for furnace oils are moving in satisfactory volume and prices are firm. Fuel oil and gas oil prices were generally steady during the week. Wax prices are firm. Continued strength in all grades of cylinder stocks was reported, the latest advance in Pennsylvania grade crude oils aiding this situation. Neutral oil prices were unchanged.

Mid-Continent—Natural gasoline price slumped from one-half to three-quarter cents. Refinery gasolines also weak. Kerosene prices reduced slightly in Kansas, Oklahoma and North Texas. Fuel oil and gas oil unchanged. Cylinder stock prices higher. Wax unchanged.

East Coast—Advances in cylinder stocks only price increase. Gasoline prices lower. Possibility of lower tank wagon prices factor in refinery market. Brisk demand for kerosene. Fuel oil and Diesel oil prices steady. Paraffin wax steady.

Pennsylvania—General advance in Pennsylvania grade crude oil not reflected in higher refinery market except cylinder stocks, some grades of which were advanced. Gasoline and kerosene slow.

Chicago—Gasoline market weak. Kerosene prices also reduced. Strong demand for furnace oils and higher gravity fuels.

California—No price changes, although gasoline considered weak.

Gulf Coast—Fair movement of low viscosity neutral oils. Fuel oil soft.

Stabilized Gasoline

Prices on natural gasoline have now reached the point where many market observers feel that substantial purchases will develop during January. This attitude is predicated on the assertion that natural gasoline prices are now sufficiently low that the maximum use of natural gasoline in refinery blending is justified. This applies particularly to refiners who can buy the natural gasoline without being compelled to absorb a large freight charge.

Another development which is expected to play a greater part in the market this year than it has in the past has to do with the use of natural gasoline as a finished product through stabilization. As in generally known research work has made it possible to use natural gasoline as a motor fuel without blending it with refinery gasoline provided the proper separation of the hydrocarbons is obtained.

Last year equipment was installed for the manufacture of the so-called "super-stabilized gasoline" by several companies. The fact that the ordinary grades of natural gasoline were as high or higher than U. S. Motor gasoline from early summer until late December tended to retard the manufacture of these special gasolines. In stabilizing these gasolines, there is a large manufacturing loss. In some cases this loss is reduced due to the fact that companies have developed a market for the propane and butane which are removed from the gasoline. In most cases, however, it is necessary to waste these lighter hydrocarbons in the manufacture of the stabilized gasoline.

Prices on the regular grades of natural gasoline have now slumped to the point where this super-stabilized operation should be more attractive. One large Mid-Continent manufacturer has a stabilizing plant with export facilities on the Gulf Coast. Other companies have the necessary equipment at inland points. The increased demand for more volatile automobile motor fuels and the large consumption by airplanes for which the stabilized gasoline is especially adapted are encouraging factors in the present situation for the natural gasoline manufacturers.

Refinery Gasolines

The accompanying table which was taken from the November report (latest available) of the Bureau of Mines, shows what is fundamentally wrong in the re-

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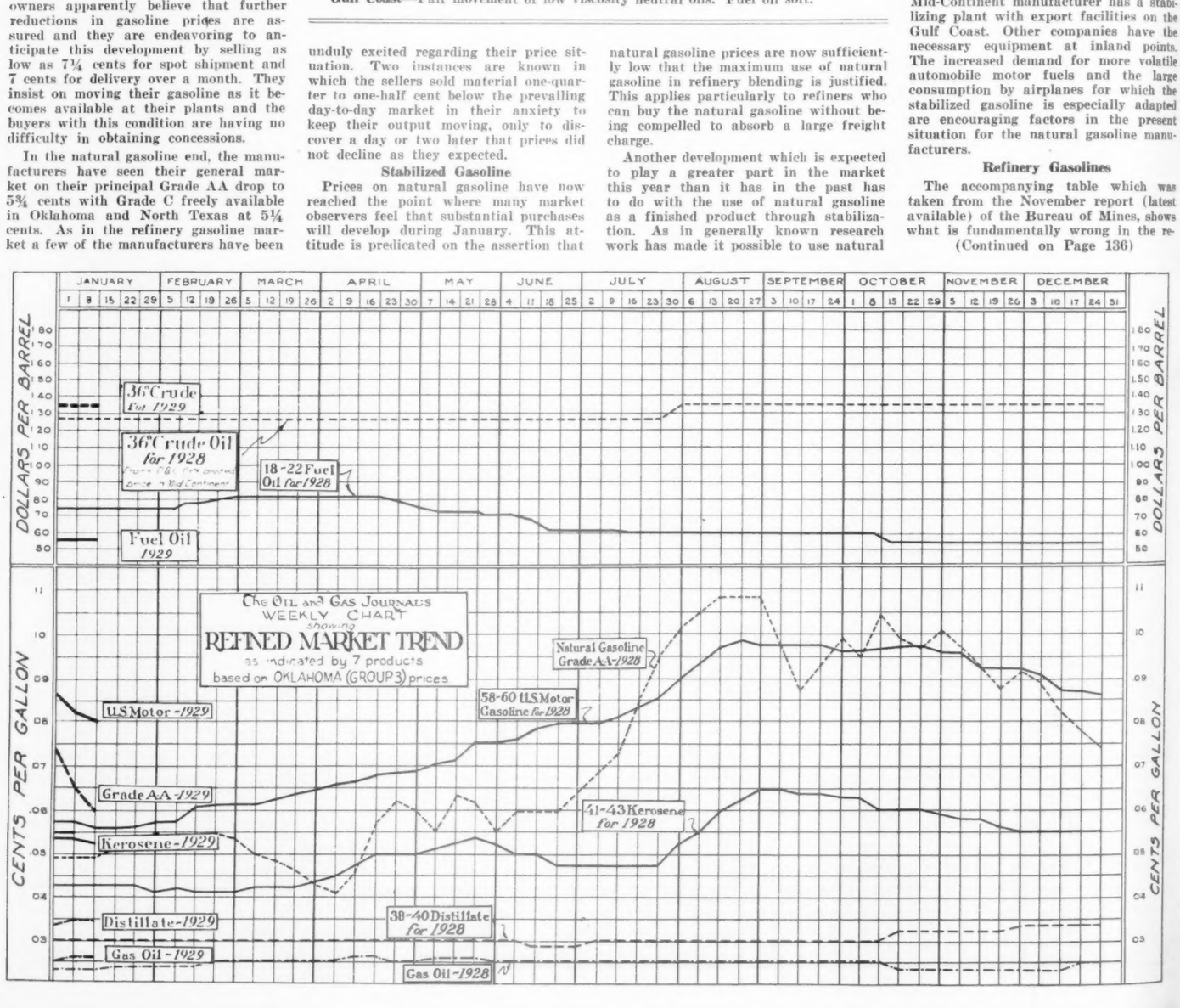

National Committee to Study Situation

President Reeser Appoints Regional Committees in Oil Producing Areas to Make Survey of Supply and Demand

Pursuant to a resolution adopted at the recent annual meeting of the American Petroleum Institute at Chicago, President E. B. Reeser has appointed the following directors to serve as a national committee on the petroleum situation:

California—Press St. Clair, chairman, M. E. Lombardi, Al Guiberson.

Rocky Mountains—Sidney Keoughan.

Oklahoma-Kansas—W. C. Franklin, chairman, W. G. Skelly, W. S. Fitzpatrick, H. V. Foster, W. N. Davis, A. M. Landon.

Texas-New Mexico—W. S. Parish, chairman, W. H. Francis, J. S. Bridwell.

Louisiana-Arkansas—M. J. Grogan.

The legal departments of the various oil companies in the different oil producing states are now considering the two measures proposed by the Conservation Committee of the Minerals Section of the American Bar Association (published in The Oil and Gas Journal, issue of January 3) with the view of determining what, if any, changes should be made in order to make these measures applicable to certain states. It is understood the reginola committtee appointed by President Reeser of the Institute will be in position to assist in the consideration of the proposed measures in the different areas.

President Reeser's Letter

In a letter accompanying the announcement of the appointment of this committee, President Reeser, said:

At the Chicago meeting last month a resolution was adopted substantially as follows:

Resolved: That the President of the Institute appoint a national committee to examine into the petroleum situation in the United States for the purpose of:

a. Estimating the quantity of crude petroleum which will be produced in each of the several states during the year 1929.

b. Determining the total amount of actual "shut-in" production.

c. Estimating potential production in the several states.

d. Considering recommendations for retarding the drilling of wildcat wells.

e. Ascertaining the amount of crude refined within the state, and the disposition of the products.

f. Ascertaining the amount of petroleum products sold within the state where manufactured, and the channel of disposition of the remainder.

g. What voluntary co-operative movements are in effect, and how effective are they?

h. Do you recommend state legislation along the lines submitted by the legal committee of the "Committee of Nine"?

It was the thought of those present at the Chicago meeting, that production and consumption in the United States, plus imports and exports, should be balanced. You have been appointed to serve on this very important committee. Please feel free to offer any suggestions or recommendations not metioned above.

It is desirable that the several state committees function as soon as possible, advising the undersigned when you will be ready to meet the entire committee. It has been suggested that the most convenient place at which the general committee can meet will be at Fort Worth, Tex. Have you a better suggestion?

Mid-Continent Committee

William N. Davis, president of the Mid-Continent Oil & Gas Association, has announced the names of the committee appointed in accordance with a resolution passed by the association at its general annual meeting held in Tulsa on December 19. The committee is composed of W. C. Franklin, Tidal Oil Co., Tulsa, chairman; W. G. Skelly, Skelly Oil Co., Tulsa; W. S. Fitzpatrick, Prairie Oil & Gas Co., Independence, Kan.; A. M. Landon, Independent Producer, Independence, Kan.; H. V. Foster, Indian Territory Illuminating Oil Co., Bartlesville; W. S. Farish, Humble Oil & Refining Co., Houston, Tex.; W. H. Francis, Magnolia Petroleum Co., Dallas, Tex.; J. S. Bridwell, Independent Producer, Wichita Falls, Tex.; M. J. Grogan, Louisiana Oil Refining Co., Shreveport, La.; William N. Davis, Phillips Petroleum Co., Bartlesville (ex-officio).

The resolution passed at the meeting December 19 provided that the president of the Mid-Continent Oil & Gas Association appoint a representative committee of nine, which in turn was directed to appoint a committee from each division of the Mid-Continent Field to study and devise the most effective plan of operation by which the association may assist in promoting constructive operating practices.

The resolution also provided that the standing legal committee of each division of the association be requested to submit to the next meeting of the general board of directors a lease provision authorizing the lessee to include the royalty and working interests in pooling agreements thereafter to be made permitting rational development of the area and preserving to the royalty interest its proportion of the interest assigned in the particular tract in the pooled area, and further that "the royalty interest owners be invited to participate in conservation work to the end that the whole industry may co-operate to improve producing conditions, reduce waste and thus confer inestimable benefits upon all branches of the industry as well as the public."

New Legislation in Texas

Legislation affecting the oil industry will probably be introduced at an early date when the Texas Legislature meets at Austin and the most important will be bills affecting title to property and amending the law governing the sale of University

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Code to Overcome Bad Habits

Must Not Be Permitted to Become Oil Industry's Eighteenth Amendment. Leadership Manifested

By Fayette B. Dow
Counsel, National Petroleum Association and Western Petroleum Association

The proposed code of trade practices represents in part the oil industry's effort to overcome its own bad habits. That process may prove to be as difficut for an industry as for an individual. But the industry's executives are men of force and character. They can, if they will, show the same zeal, enthusiasm, and persistence in operating their properties in relation to the whole industry's welfare that they have shown in operating those properties guided only by the play of company ambitions.

There is one rule of the code which says in substance that the word "price" shall mean what it says, and shall not be simply the most convenient word one oil man can use in lying to or about another. Many men have said to me that if the code can accomplish that one object the whole program will be justified. They would welcome the ability to compete with knowledge of the facts.

But I shall not discuss the code in detail. I am concerned, at this moment, with its details. I am primarily interested in what the code signifies for the whole industry.

The code cannot rightly be viewed as an isolated and unrelated spasm of reform. It is, as I see it, one of several efforts which, although as yet somewhat disconected, have sprung up quite spontaneously in a comparatively recent period, and which in the future will be recognized as parts of a single larger movement to substitute stabilized order for periodical economic chaos. I might even say that oil men all unconsciously have been trying to apply two great maxims of the old Greeks: "Know Thyself" and "Nothing in Execss," which may be paraphrased by the single words "intelligence" and "balance."

These other efforts have not been made without substantial changes of heart and of viewpoint, as well. May I refer to some of them?

I remember well the days when the Mid-Continent refiners spent most of their spare moments damning the Standard Oil Co. of Kamiskatka for the amount of red ink they were using. Every revision of price or practice they felt sure was intended to put them out of business. What a change to find those ardent individualists revising that mental process, asking themselves the extent to which they were contributing to the general overproduction, studying the probable consumption of their natural markets, operating their plants with a more informed judgment, and recognizing that they themselves are largely responsible for the profit and loss accounts not only of their own companies but those of the whole group! Certainly no more rational or promising effort has been made in the oil industry. And what economy in the use of red ink!

Who does not remember how recently the concept of the unit development of a producing area was regarded as a mere counsel of perfection? "It is not a new idea or a new ideal," they said. "Every company's great ambition has always been to own a whole oil field and develop it when and as they saw fit." But practically it was impossible. Oil fields had always been developed by competitive drilling at breakneck speed and always would be. "Oil production cannot be made business-like because oil is different. The oil wanders around—it doesn't belong to anybody until he gets it to the surface—then there are the lease requirements, etc., etc." You know the arguments. It simply could not be done.

Who does not know that if Seminole and Winkler and Pecos had been brough in at one time with the same unrestraint as were the seven major pools of 1923, the industry would have again committed suicide by drowning?

Who does not know that executives who have wanted to keep government out of the oil business at all times and at any cost are now seeking legislation which will empower a state, upon request of a major ownership in an area, to restrain a minority from precipitating one of the good old "inevitable" competitive drilling campaigns?

Who does not believe that, in recognition of both the public and the private interest, oil production has now a good chance to become an intelligent business operation instead of a race to enrich the few no matter how many others might be impoverished?

Supply and Demand Survey

I shall stop asking rhetorical questions, for a moment at least, to express a word of appreciation of the program of the committees which will soon be working on a survey of the crude oil production of the major producing states in terms of the consumption requirements to be served by those states. This will involve a study of important producing fields which are the source of our imports and

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MICHIGAN OPERATORS FORM ASSOCIATION

By Special Correspondent

MUSKEGON, Mich., Jan. 5.—Faced with the passage of a proposed new Michigan oil and gas law which in many particulars would not be satisfactory to them, operators of the Muskegon Field and other parts of the State took the first steps for the formation of "The Michigan Oil and Gas Association" with "the promotion and protection of the oil and gas industry in the State of Michigan" as its avowed purpose.

Articles of association for the new organization as a non-profit corporation modeled after the Mid-Continent Oil and Gas Association have been filed at the offices of the secretary of state at Lansing and will be presented to the operators here in a general meeting to be held early next week at which all will be invited to join.

Southern Howard County to be Active

Promised Play in Both Wildcat Drilling and Proven Areas. Report on Structural and Production Data

Southern Howard County, one of the major producing areas of West Texas, probably will be one of the most active areas in the Permian Basin during the foreport of the new year both in wildcat drilling and drilling of proven leases. Following the discovery of big production in the lime below the old producing red beds, Big Spring, approximately 12 miles north of the producing area, became a West Texas refining center. At the present one 2,500-bbl. plant is in operation but two others that will boost the refining capacity to approximately 20,000 bbls. daily, will be in operation early in 1929.

Forty-four lime producing wells in the area have a combined potential production of 41,000 bbls., according to the December 16 report of E. E. Andrews, umpire for the proration plan in that district. The advisory committee for the Howard County proration plan raised the allowable production of lime producing well 5,000 bbls. to 35,000 bbls. daily a few days ago. Upon this basis the allowable production totaled 34,943 bbls., leaving a margin of 6,059 bbls. between potential production and allowed production.

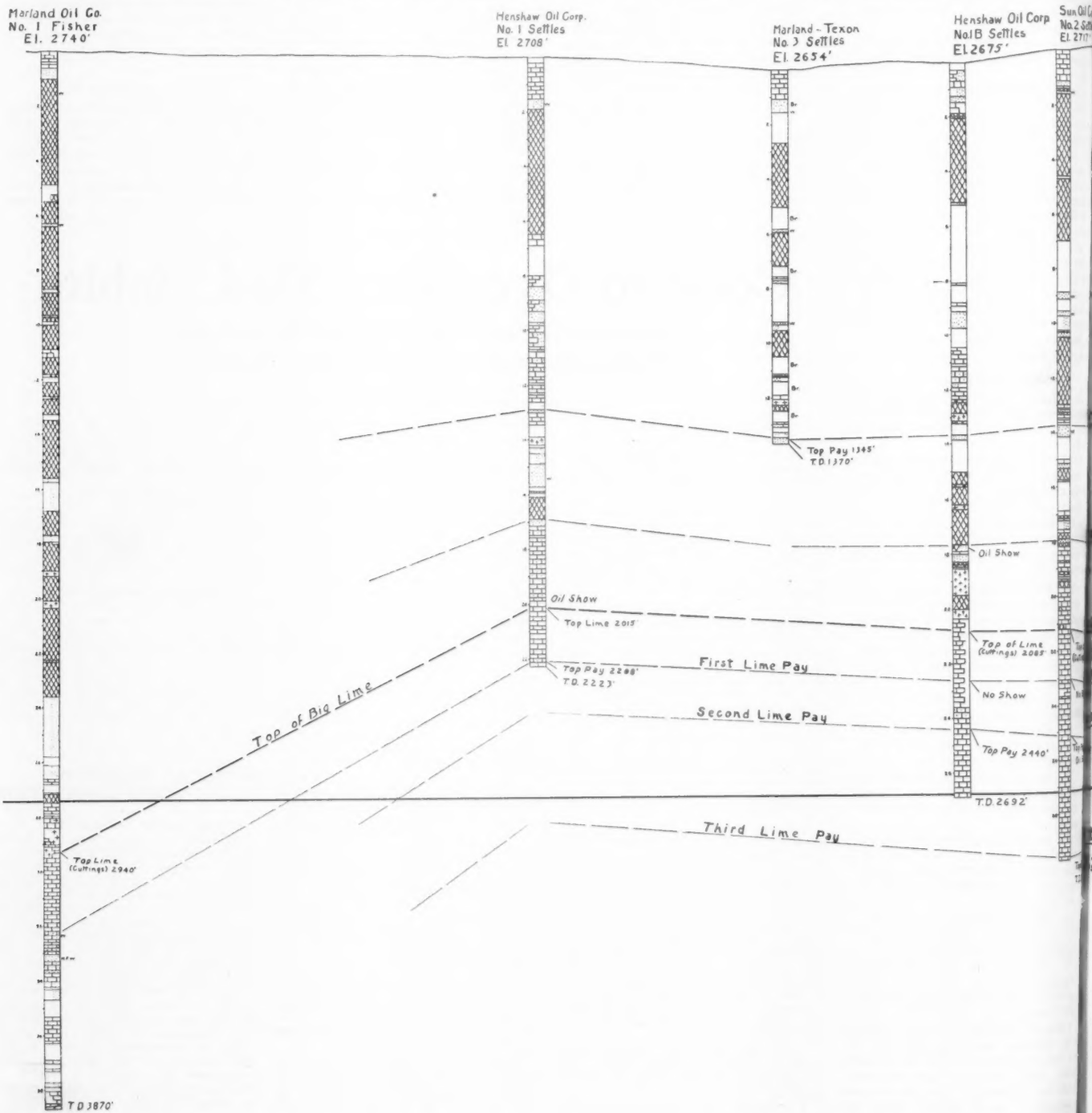
Water encroachment has affected 17 of the deep lime producers and is in consequence serious enough to prompt operators to call a meeting of engineers to devise means of combating the problem. It is generally believed that swabbing the wells has greatly aggravated the water trouble and it is probable that swab tests for proration purposes will be further limited.

The following is a memorandum report covering the southern Howard County area, recently prepared by V. E. Cottingham, of Cottingham and Briscoe, consulting geologists, San Angelo, Tex. The report is illustrated with a cross section of the area, a subsurface map with contours drawn on top of the second red sand pay zone and another subsurface map contoured on the big lime.

Chalk Field

The memorandum report covers briefly the structural and production data for the Chalk Field in Howard and Glasscock Counties, Texas.

The discovery well was drilled in by



Owen and Sloan in April, 1926. This well produced from the 1,600-foot red bed pay horizon which is approximately 300 feet above the top of the lime. Around 100 wells were drilled into this horizon before the Magnolia's No. 1 Dora Roberts, located in the SE cor. SW, Section 136, Block 29, came in for 4,000 bbls. from a new lime pay horizon. The top of the pay was encountered at 2,956 feet. This discovery was during the fall of 1927. Since that time, 35 wells have been completed at this level. In addition, two other lime pay horizons have been discovered, one at 2,200 feet and the other at 2,500 feet. Three wells have been completed in the 2,200-foot horizon and six in the 2,500-foot pay, making a total of 44 wells producing from the lime. Approximately 180 wells have been completed in the two red bed pay horizons. This makes a grand total of around 218 wells completed up to the present time.

The surface rocks belong to formations

(Continued on Page 130)

Natural Gas Department Meeting

Gas Men Specially Attracted to Shreveport Meeting by Remarkable Development of North Louisiana Production

SHREVEPORT, La., Jan. 7.—The great development of the natural gas industry in Louisiana, particularly within the past two years will attract attention of operators from many states who will attend the annual convention of the Southwest Division, Natural Gas Department of the American Gas Association here January 14 and 15. Louisiana has surpassed its old rival, West Virginia, in the past year and is now third in production of natural gas, ranking close to its sister States of Oklahoma and Texas. Open flow capacity of the 229 wells in north Louisiana completed during 1928 totaled 3,977,878,878 feet of which one-third is credited to the new field in Richland Parish the real development of which began this year and which promises to rival the great Monroe Field. With all this gas Louisiana is still the leader in the manufacture of carbon black from gas, though during recent months there has been a well defined migration of the industry to the West Texas fields, Texas placing no restrictions on the consumption of gas for carbon making.

H. C. Morris of Dallas, Tex., vice chairman of the Natural Gas Department of the American Gas Association, will preside at the convention for which the following is the program:

January 14

9:30—Call to order; invocation.

Address of welcome by Mayor L. E. Thomas of Shreveport.

Response—W. M. Phillips, Shreveport.

Address—Major Alexander Forward, managing director, American Gas Association.

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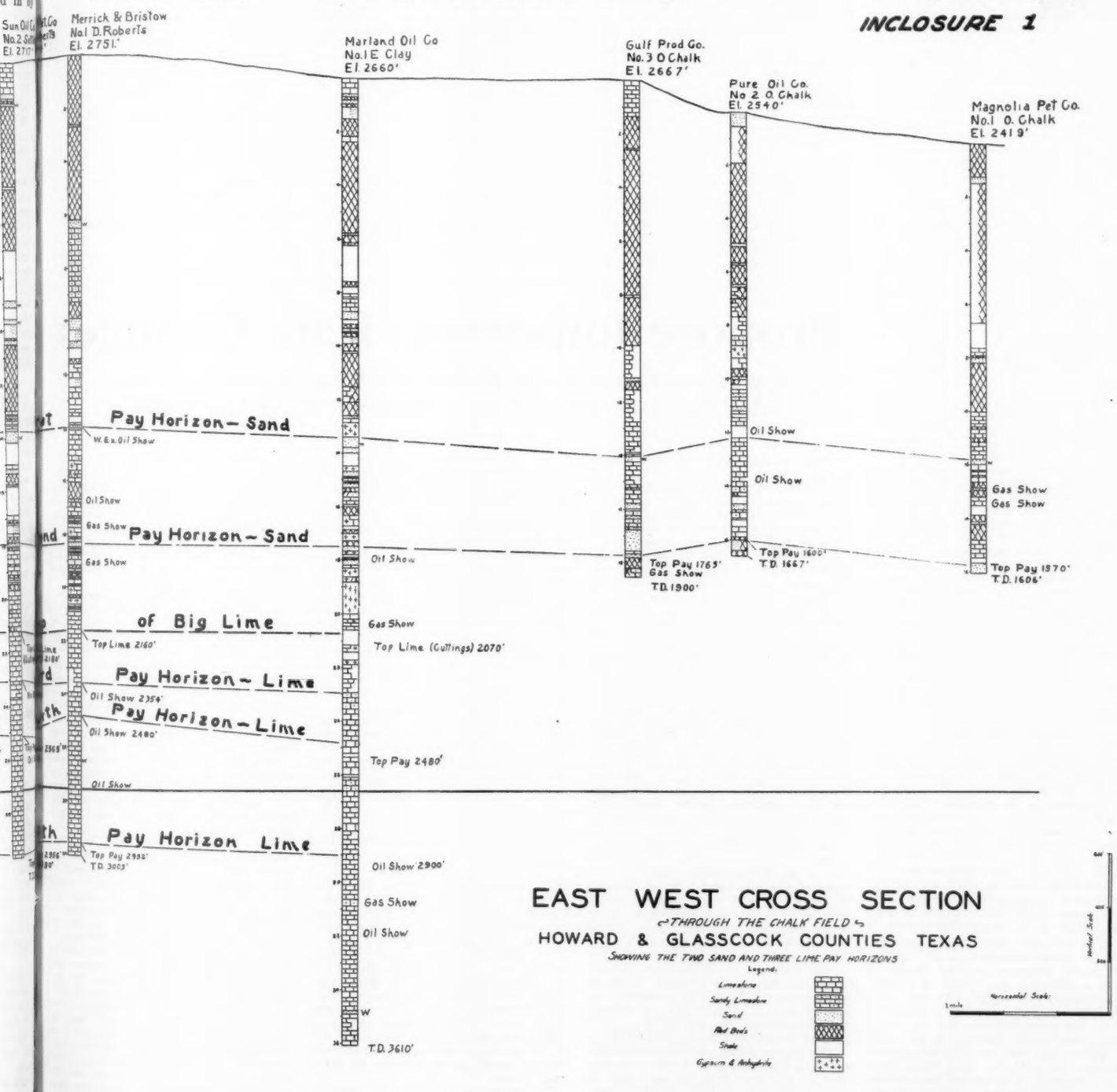
INCLOSURE 1



Oil Industry Uses Waterways Most

Traffic Managers Directing Attention to Increasing Facilities for Inland Water Transportation

By Charles E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Jan. 7.—"Oil companies make more use of our waterways than does any other industry," stated a prominent engineer and student of inland waterway transportation.

Some lines of business that have sought and used water transportation, and have contributed a vast amount of tonnage to that method for transporting goods, have had careers more or less seasonal or temporary so that it has happened that reasons for expending money for deepening and widening channels for them have ceased to exist after a few years. In the case of oil, however, the history of its movement by water has been one of steady increase and all indications point to the fact that no other single industry promises such permanent traffic as does that which relates to petroleum and the products of petroleum.

While the movement of crude oil has developed a pipe line system, gasoline and other products of petroleum, because of the multiplicity of destinations, has caused to be created a network of transportation systems that has called into its service a greater variety of carriage than any other single commodity. The fact that water transportation is the most practical and the cheapest means of distributing gasoline, lubricating oil and other products of petroleum is evidenced by the steady increase in the use of water routes.

This increasing use of water transportation is today directing the attention of traffic managers toward methods for increasing the facilities of the vast system of inland waterways which up to the present time has resulted in the expenditure of about $1,400,000,000 including the cost of maintenance. This investment has been made largely in the face of criticism and opposition. The "pork barrel" has frequently been referred to as indicating the nature of river and harbor appropriation bills which have often been denounced as a distribution of the public funds for more or less questionable purposes to obtain the expenditure of money on local projects with little public benefit. The time has now come when these "pork barrel" projects are being formed into a system of economical transportation reaching many remote sections and providing traffic competition that has affected the entire rate structure of the railroads.

Further Improvement

The wide-spread use of inland water transportation is now causing discussion of methods for increasing the usefulness of this system by calling the attention of Congress to the economies that are possible by a series of improvements that have been carefully worked out by engineers and traffic managers. In a broad and general sense, plans for connecting distributing and consuming centers may be said to be almost complete leaving the problems of widening and deepening existing channels as the one means for obtaining cheaper water transportation rates.

There has never been a more favorable time for traffic managers to get together to consider improvements that should be made to permit larger vessels to operate where barges and small craft have been the only means for moving products of oil in the past. The method for doing this is very simple although it will have to follow the lines of long established practice. In order to bring these needs to the attention of the rivers and harbors committees of Congress whose recommendations are necessary to obtain appropriations it will be necessary to work along established lines of procedure.

Whenever money is given for the improvement of rivers and harbors. Congress has to be shown that there is a prospective traffic waiting to use such improvement. The familiarity with traffic needs possessed by the men who are charged with directing shipments from oil refineries is regarded here as amply able to produce convincing arguments for the deepening and widening of many inland waterways.

Need Deep Channels

Engineers and other students of water transportation hold that within reasonable limits the efficiency of a navigable channel increases as the cube of the depth, that is, a 10-foot channel is not only twice as efficient as a medium of transportation as a 5-foot channel, but it is eight times as efficient, and this comparison is held to be true in respect to all deepening and widening projects. As the capacity of the channel is enlarged and the size of the vessel using it is increased transportation rates are lowered. The fact that the present system of inland waterways often with insufficient depth and width of channel have attracted to them such a large body of oil traffic is regarded as proof of the additional benefit that will come to the oil industry with the enlargement of these water facilities.

The method for bringing influence upon Congress is chiefly through assembling data in respect to the prospective use of each river and stream capable of being improved. Other industries have followed that procedure, notable among which are those relating to the distribution of coal and steel products. The whole canalization of the Ohio River was predicated upon the movement of coal from Pittsburgh to New Orleans. It was shown that it was not the mileage involved in the movement, but the cost of transportation that constituted the true commercial measure of distance and following out that principle the Government at Washington was convinced of the wisdom of improving navigation to permit this movement of coal.

Just as other industries have obtained water facilities, so it is stated, the oil industry will be able to promote its delivery by boats upon making a proper showing that the public welfare will be served. The attitude of President-elect Herbert Hoover in favor of cheap water transportation as a means of benefiting industry fits perfectly into plans that may be formulated for the purpose of delivering products of petroleum at favorable rates to many communities not now efficiently served by other means of transportation.

In one respect the needs of the oil industry for reaching remote populations is more pronounced than in the case of any other commodity. Gasoline and lubricating oil are not only of universal use, but upon them depends the convenience and prosperity of communities while transportation rates form a considerable portion of the necessary retail costs. Gasoline in many instances at the present time is distributed by means of barges on streams that provide as little as 3 feet of water depth. Whatever increase in depth may be obtained will permit a better distribution and if that depth can be made sufficient to accommodate vessels of sufficient size the minimum of transportation rates will be available to such communities.

Will Lower Rates

In most instances projects for the deepening of a waterway are initiated within the communities affected rather than by the industries that are to serve such

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Propose Important Rate Changes

Examiners' Report Would Reduce Oklahoma, Kansas and Texas Schedules to Northeast Points. Southeast Rates Also Changed

By C. O. Willson

Important changes in the present rail rate structure on petroleum products from Mid-Continent and Gulf Coast refining points to consuming centers in the northeastern and southeastern states are proposed in a report of Examiners John B. Keller and P. S. Peyser which was presented to the Interstate Commerce Commission during the past week. The report is the first to be made in connection with a case which has engaged the attention of traffic men in the petroleum industry since 1926.

In the gathering of testimony by the examiners several hearings were held during 1926 and 1927, the last hearing being held at French Lick, Ind., in June, 1927. It is certain that numerous exceptions will be made to the examiners' report before finally acted upon by the commission and for that reason traffic men are of the opinion that none of the rates proposed will become effective before the latter part of 1929. By that time several other pending rate cases will have progressed to the point where they may influence the issues involved in the present case.

One of two destination territories concerned in the report of the past week is east of the Illinois-Indiana state line and north of the Ohio and Potomac Rivers. The other phase of the report has to do with rates to the Southeast states, south of the Ohio and Potomac Rivers. All of the refining groups in Kansas, Oklahoma, Texas, Arkansas and Louisiana are involved directly in the decision and incidentally due to the proposed advances of reductions in rates, the examiner's report is of vital importance to refiners and distributors throughout the entire country east of the Rocky Mountains.

The proposed changes are so involved in many instances that traffic men the first of the week had not had time to make a detailed analysis of the report. In general, however, it was apparent that if the report is approved by the Interstate Commerce Commission there will be material reductions in present rates from Oklahoma, Kansas and Texas refining points to the states east of the Indiana-Illinois state line and north of the Ohio and Potomac Rivers.

In regard to the points in Indiana the report proposed a further change in rates under those that became effective last year from Oklahoma. The proposed reduction is one-half cent per hundredweight. The report also recommends that the temporary reductions of 2½ cents per hundredweight which were made from Chicago and St. Louis refining centers to Indiana points by the carriers, be made permanent.

East of Indiana

For the territory east of Indiana the following table is representative of the changes from Oklahoma (Group 3) recommended in the examiner's report (figures given in cepts per cwt.):

	Present Rate	Proposed Rate
Cincinnati	51	46
Detroit	56	54
Pittsburgh	60½	58
Columbus, Ohio	54	50
New York	78	68
Boston	80	70

The differentials under or above the Oklahoma (Group 3) rates to these consuming points vary materially changes the present rate structure. The Group 3 refiners (Southeast Kansas) are given a 2-cent differential under Group 3 which includes not only all of Oklahoma but the south central group of Kansas refiners. From North and South Texas the differential is 2 cents above the Group 3 rate. This proposed change in some instances increases the rates and in all instances increases the differentials to points on the Atlantic Seaboard from Texas.

The rates to this northeast territory from Arkansas, North Louisiana and New Orleans are placed on a parity with Group 3 in the examiner's report. This provision also distributes the present relative price structure in the Mid-Continent Field. At present the North Louisiana and Arkansas refiners enjoy a lower rate than Group 3 to these northeast points, an advantage which has greatly aided them in the profitable sale of their refinery output.

Eastern Refiners' Position

In the hearings held in 1927 eastern refiners maintained that if the rates from Mid-Continent points to the northeast states were reduced then the interterritorial rates should also be reduced. The examiner in report refuses to make this recommendation and makes the following significant comment on this phase of the case:

"The spread between tank wagon and retail prices and tank car prices in Ohio would indicate that Mid-Continent competition is not a controlling element in the fixation of the tank wagon and retail prices in that State, and that the latter prices do not control the Group 3 tank car prices.

"The evidence introduced by these (eastern) refiners indicates that the rates within the East are in somewhat of a chaotic condition and that ultimately the inequalities which now exist will have to be removed. But it is believed that the immediate present is not the proper time to attempt any general revision of these rates. After the eastern class rate case has been decided this proceeding should be set down for further hearing with regard to rates within the East. * * * Shippers in the East will undoubtedly protest that reductions cannot in fairness be made from the Mid-Continent Field without corresponding reductions in the East. The record justifies the conclusion that the reductions recommended from the Mid-

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Reduction in Crude Runs to Stills

Mid-Continent Operations for January Slightly Less Than in February. Decline Confined to Oklahoma and Kansas

By W. T. Ziegenhain

The Mid-Continent refinery crude runs will show a decrease of 11,450 bbls. daily during January but the total remains above the half-million mark established in July of last year. There has been a general curtailment of runs in Kansas causing a drop in the runs there of 8,400 bbls., while the Oklahoma reduction of 8,850 bbls. was the result of four small plants shutting down. To partially offset these reductions the North Central Texas area, West Texas and Arkansas each showed slightly higher runs. Compared to a year ago the increase in runs closely approaches 100,000 bbls. daily, nearly half of which may be accounted for by the new West Texas plants. The balance is scattered with Oklahoma and North Central Texas, showing the great share of the increase.

No doubt the declining gasoline market and the weak fuel market has had its effect in curtailing operations and even greater reductions in runs may be anticipated as the winter and early spring demands remain at a low level. Some refiners have had to operate with only a few days storage room ahead and in some cases, cars have been loaded in advance of orders.

Oklahoma

On January 1 there were four less plants operating in Oklahoma than on the first of the previous month, causing a reduction in the runs of about 7,000 bbls. The plants which discontinued operations include the Gilmer Oil Co.'s 3,000-bbl. plant at Ringling, the Illinois Oil Co.'s refinery at Cushing, also a 3,000-bbl. plant, the Texas Pacific Coal & Oil Co.'s plant at Wynnewood and the Walters Refining Corp.'s plant at Walters.

Except for these changes there is little difference in the operations at the balance of the plants. The Interocean Refining Co. has started operating its new Jenkins unit at Bristow and as was previously announced, the Wilcox Oil & Gas Co. will install a 1,000-bbl. Dubbs unit in its refinery also at Bristow. Construction work has only started on this unit, however, and it will take several months before it is ready for operation.

North Central Texas

There was practically no change in the total crude runs in this area and the operation of the individual plants also remained unchanged. Fuel oil continues to be freely offered and there is a noticeable tendency to maintaining cracking operations with the possibility of cutting crude runs in the near future.

RUNS TO STILLS AT MID-CONTINENT REFINERIES

1927	
January 1	403,625
February 1	418,595
March 1	418,920
April 1	401,860
May 1	407,355
June 1	426,170
July 1	428,075
August 1	457,800
September 1	422,150
October 1	420,955
November 1	426,654
December 1	417,455
1928	
January 1	415,125
February 1	418,275
March 1	427,145
April 1	451,225
May 1	479,225
June 1	487,135
July 1	506,310
August 1	543,625
September 1	563,270
October 1	547,820
November 1	550,000
December 1	520,000
January 1	508,550

West Texas

Crude runs were increased slightly in the West Texas area with no change in the number of operating plants. Construction work on the Burford Oil Co.'s plant at Pecos Valley is nearing completion and the initial runs will be made about February 1. The plant of the Great West Refining Co. at Big Spring is also nearing completion and crude will be charged to the stills some time during January.

North Louisiana and Arkansas

The north Louisiana and Arkansas refining areas showed very little change in this month's refinery operations, the increase in the Arkansas runs of 1,000 bbls. being due to the increased runs at the Root Refineries, Inc., plant at El Dorado where improvements were recently completed bringing the capacity of the plant up to 6,000 bbls.

MID-CONTINENT REFINERY OPERATIONS

(Based on Operations January 1, 1929, and December 1, 1928)

	No. of plants Jan. 1	Daily crude cap. (bbls.) Jan. 1	Daily crack cap. (bbls.) Jan. 1	Plants oper. Jan. 1	Runs to stills Jan. 1	Plants oper. Dec. 1	Runs to stills Dec. 1	Daily decr. Jan. 1
Arkansas	8	38,800	9,700	8	28,700	8	27,700	1,000
Kansas	19	136,500	68,800	16	90,300	17	98,700	8,400
N. Louisiana	6	55,700	16,800	6	42,600	6	42,600	....
Oklahoma	48	292,200	103,550	42	194,000	45	202,850	8,850
N. and Cent. Texas	35	159,700	25,200	34	101,600	32	99,700	1,900
West Texas	20	89,250	2,000	19	51,350	20	48,450	2,900
Total	137	772,150	226,050	125	508,550	128	520,000	11,450

REFINERY OPERATIONS IN NORTH LOUISIANA

(Plants which have been in operation during the past year)

Name and location—	Daily capacity	Runs Jan. 1	Runs Dec. 1
Bayou State Refining Co., Houston	700	300	600
Crystal Oil Refining Corp., Shreveport	14,000	7,500	7,500
Dixie Oil Co., Superior	3,000	2,500	2,500
Louisiana Oil Refining Corp., Shreveport, Bossier	24,000	18,000	18,000
Shreveport Producing & Refining Co., Shreveport	8,000	8,300	8,000
The Texas Company	6,000	6,000	6,000
Total	55,700	42,600	42,600

REFINERY OPERATIONS IN ARKANSAS

(Plants which have been in operation during the past year)

Name and location—	Daily capacity	Runs Jan. 1	Runs Dec. 1
Henry H. Cross Co., Smackover	5,500	5,100	5,500
Houston Oil Co., Camden	3,000	2,200	2,000
Kettle Creek Refining Co., Pearson	5,000	4,000	4,200
Lion Oil & Refining Co., El Dorado	12,000	7,000	7,000
Macmillan Petroleum Products Co., El Dorado	1,800	1,600	1,600
Ouachita Valley Refining Co., El Dorado	2,000	1,000	900
Root Refineries, El Dorado	5,500	5,500	4,000
Simms Oil Co., Smackover	3,000	2,300	2,500
Total	38,800	28,700	27,700

REFINERY OPERATIONS IN OKLAHOMA

(Plants which have been in operation during the past year)

Name and location—	Daily capacity	Runs Jan. 1	Runs Dec. 1
Anderson-Prichard Oil Co., Cyril	2,500	2,000	2,000
Barnsdall Refineries, Inc., Barnsdall	6,000	3,700	3,500
Barnsdoll Refineries, Inc., Okmulgee	10,000	3,000	4,000
Bell Oil & Gas Co., Grandfield	4,500	2,000	2,000
Bolene Refining Co., Enid	5,000	3,500	4,000
Canfield Refining Co., Yale	400	(*)	(*)
Champlin Refining Co., Enid	16,000	9,000	12,000
Continental Oil Co., Sapulpa	10,000	2,500	3,600
Cushing Refining & Gasoline Co., Blackwell	1,800	1,200	1,200
Cushing Refining & Gasoline Co., Cushing	3,500	2,000	2,000
Empire Oil & Refining Co., Cushing	5,000	4,700	4,700
Empire Oil & Refining Co., Okmulgee	4,000	4,000	4,000
Empire Oil & Refining Co., Ponca City	7,500	5,500	5,500
Empire Oil & Refining Co., Ponca City	7,500	5,500	5,500
Garber Refineries, Inc., Garber	3,500	2,800	2,700
Gilmer Oil Co., Ringling	3,000	(*)	1,100
Globe Oil & Refining Co., Blackwell	7,500	5,000	5,000
Globe Oil & Refining Co., Cushing	8,000	9,000	8,000
Homaokla Oil Co., Allen	1,500	900	950
Illinois Oil Co., Cushing	3,000	(*)	2,000
Imperial Refining Co., Ardmore	5,000	2,000	2,000
Independent Oil & Gas Co., Okmulgee	5,000	3,200	3,200
Interocean Refining Co., Bristow	4,000	2,000	(*)
Johnson Oil Refining Co., Cleveland	6,000	4,900	5,100
Marland Refining Co., Ponca City	30,000	19,000	18,000
Northwestern Refining Co., Tonkawa	2,500	3,000	3,000
Peppers Gasoline Co., Covington	1,000	700	800
Pierce Oil Corp., Sand Springs	8,000	7,200	7,200
Producers Oil Co., Bristow	2,500	800	800
Producers & Refiners Corp., West Tulsa	6,000	2,500	3,000
Pure Oil Co., Ardmore	5,000	2,000	2,000
Pure Oil Co., Muskogee	9,000	8,000	7,000
Rock Island Refining Co., Beckett	2,500	1,800	1,800
Sayre Oil & Refining Co., Sayre	500	(*)	(*)
Shaffer Oil & Refining Co., Cushing	10,000	10,000	10,000
Sun Oil Co., Yale	5,000	4,800	4,800
Sinclair Refining Co., Muskogee	1,000	600	600
The Texas Company, West Tulsa	15,000	13,000	13,500
Texas Pacific Coal & Oil Co., Wynnewood	2,500	(*)	1,600
Tidal Refining Co., Drumright	10,000	10,000	10,000
Transcontinental Oil Co., Boynton	2,500	1,800	2,000
Transcontinental Oil Co., Bristow	5,000	4,300	4,000
Walters Refining Corp., Walters	1,000	(*)	1,000
Western Oil Corp., Beckett	2,000	1,400	1,200
White Oak Refining Co., Allen	3,000	2,500	2,600
Wilcox Oil & Gas Co., Bristow	1,000	600	1,000
Wirt Franklin Petroleum Corp., Ardmore	4,000	3,100	2,400
Yale Oil Corp., Yale	1,500	1,000	1,000
Total	292,200	194,000	202,850

*Shut down.

REFINERY OPERATIONS IN WEST TEXAS

(Plants which have been in operation during the past year)

Name and location—	Daily capacity	Runs Jan. 1	Runs Dec. 1
Amarillo Producers & Refiners Corp., Pyote	3,000	1,750	1,200
Big Spring Refining Co., Big Spring	2,500	2,500	2,500
Bluebonnet Oil Refining Co., Wickett	5,000	3,000	3,500
Central Texas Refining Co., Brownwood	1,250	600	500
Col-Tex Refining Co., Colorado	10,000	6,600	6,600
Grayburk Oil Co., San Antonio	6,000	2,400	2,200
Humble Oil & Refining Co., San Antonio	5,000	3,000	3,000
Humble Oil & Refining Co., McCamey	20,000	9,000	9,000
Misko Refineries, Inc., Laredo	1,500	500	500
Midland Refining Co., Midland	2,000	1,800	1,700
Pasotex Petroleum Co., El Paso	10,000	5,000	5,000
Pecos Valley Refining Co., Pyote	5,000	4,900	3,500
Pioneer Oil & Refining Co., Somerset	1,500	900	950
Rio Grande Oil Co., El Paso	3,000	2,800	2,800
San Angelo Refining Co., San Angelo	2,000	2,000	2,000
Superior Oil Co., Inc., Odessa	500	(*)	(*)
Sweetwater Oil & Refining Co., Sweetwater	2,000	(‡)	(‡)
Tonkawa Petroleum Co., Pyote	4,000	3,600	2,600
Texas Mexican Oil & Refining Co., Laredo	1,000	500	400
Texas Petroleum Products Co., Somerset	1,500	500	500
Wickett Refining Co., Wickett	2,500	(†)	(†)
Total	89,250	51,350	48,450

*Shut down. †The Wickett Refining Co. operates with tops secured from the Bluebonnet Refining Co. The plant during January will handle approximately 1,000 bbls. of tops daily. ‡Running 400 bbls. tops daily.

REFINERY OPERATIONS IN NORTH CENTRAL TEXAS

(Plants which have been in operation during the past year)

Name and location—	Daily capacity	Runs Jan. 1	Runs Dec. 1
Amarillo Producers & Refiners Corp., Isom	2,000	1,000	1,250
American Refining Properties, Wichita Falls	6,000	3,700	3,700
Continental Oil Co., Wichita Falls	6,000	4,000	4,000
Dale Oil & Refining Co., Electra	2,500	2,800	2,400
Empire Oil & Refining Co., Gainesville	5,000	3,600	3,600
Falls Refining Co., Wichita Falls	1,500	1,000	1,000
Gulf Refining Co., Fort Worth	10,000	7,500	7,500
Superior Refining Co., Tiffin	2,000	300	350
Iowa Park Producing & Refining Co., Iowa Park	2,500	1,200	1,300
Kent-Middleton Refining Co., Angus	4,000	1,500	1,500
Kent-Macmillan Refining Co., Minerva	2,000	700	700
Macmillan Petroleum Co., Isom	6,500	5,500	6,200
Magnolia Petroleum Co., Fort Worth	12,000	7,500	8,000
Magnolia Petroleum Co., Corsicana	5,000	3,400	3,400
Noble Oil & Gas Co., Burkburnett	3,500	2,500	2,800
Olney Oil & Refining Co., Olney	2,000	1,800	1,800
Oriental Oil Co., Dallas	5,000	(*)	(*)
Oriental Oil Co. (Trinity), Dallas†	5,000	3,500	3,800
Orient Petroleum Co., Wichita Falls	2,500	1,000	1,200
Panhandle Refining Co., Wichita Falls	5,000	3,300	3,300
Pampa Refining Co., Pampa	4,000	2,500	2,500
Phillips Petroleum Co., Isom	7,500	7,500	7,000
Primrose Refining Co., Wichita Falls	2,500	1,800	1,200
Primtex Refining Co., Grand Prairie	2,500	900	850
Simms Oil Co., Dallas	5,000	5,500	4,200
Star Refining & Producing Co., Fort Worth	1,800	1,200	350
Swastika Refining Co., Muenster	1,000	(*)	(*)
Taxman Refining Co., Wichita Falls	2,500	2,000	1,700
The Texas Company, Dallas	15,000	12,500	12,500
The Texas Company, Amarillo	6,000	2,000	2,000
Tidal Western Refining Co., Burkburnett	3,000	2,000	2,000
Texas Pacific Coal & Oil Co., Fort Worth	3,000	2,000	2,000
Transcontinental Oil Co., Fort Worth	5,000	4,000	3,600
Waggoner Refining Co., Electra	3,400	1,900	2,000
White Eagle Oil & Refining Co., Fort Worth	6,000	(*)	(*)
Total	159,700	101,600	99,700

*Shut down. †Operated by Magnolia Petroleum Co.

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Development Under Unified Control

Discussion of Relative Results of Competitive and Co-Operative Operations in an Oil Pool. Comparative Experience

By Ernest R. Lilley, Sc. D.
Associate Professor of Geology at New York University

Of all the suggestions that have been made since the development of interest in the conservation of the oil resources of the United States following the close of the World War, the one that has received the greatest amount of support is that of the development of pools under some form of unified control. While others have supported the general idea of unit control of oil pools, the credit for bringing this suggestion before the oil industry and the nation belongs mainly to Henry L. Doherty.

Readers of The Oil and Gas Journal are familiar with the tremendous amount of discussion that has been brought about by the activities of the Oil Conservation Board. R. H. Smith, president of the Oklahoma Oil Co., offered a plan for development around a wildcat discovery at the first public meeting of the board on February 10, 1926. Most of the speakers at the actual meetings of the board contented themselves with general statements, the more definite proposals being made in less formal discussions or as articles in the trade journals. During 1926 the majority appeared to be definitely against any proposals of unified control that were based upon giving the states or the National Government any supervision over development policies. The largest portion of those holding this view were inclined to agree that unified control of developing pools was desirable but preferred that the operators be given the right to solve their own problems. Some of them indicated their belief that the only reason unified control of development had not been applied was that of fear of the antitrust laws of the National Government. The views of this group are reflected in the report of the Committee of Nine appointed by the Federal Conservation Board to consider the legislative needs of the oil industry. The committee consisted of three lawyers, three representatives of the Government, and three representatives of the oil industry. Its report, presented on January 28, 1928, contained the definite proposal that laws be passed by Congress permitting the co-operation of producers and royalty owners under the general supervision of the Federal Oil Conservation Board during periods of overproduction and the co-operative development and operation of individual pools.

Marland's Action

Early in 1927, E. W. Marland, who had headed a committee to study the waste of gas and its prevention for the American Petroleum Institute, presented a report urging that legislation be secured that would make impossible the waste of gas in oil producing structures. The findings of the committee had impressed him to such a degree that he felt that the situation warranted immediate action. He drew up and presented to the Oklahoma legislature a gas conservation measure of the most stringent character. Its enforcement would have automatically set up a system of compulsory unit operation. The bill had been drawn up hastily in order to insure its consideration before the close of the legislative session. Criticism centered as much on the mechanical defects of the bill as on the general principles involved. The Mid-Continent Oil & Gas Association protested to the legislature against the bill, which was finally reported on unfavorably by the committee of the legislature to which it had been referred.

Seminole Forces Issue

In July of 1927, the Corporation Commission of Oklahoma was asked to use its authority to restrict drilling and production in the Seminole area. While differing materially from the regulations proposed by the original Doherty plans as far as details were concerned, the orders placed in effect by the Corporation Commission very definitely followed the principles of those plans. It is true that the orders were merely the agreements that had been adopted by the producers and followed the same lines that had been used in the agreements that had been made before the Corporation Commission had been called in. However, their announcement as orders of the commission gave them a legal authority that could not be conveyed to them by a gentlemen's agreement between producers. Refusal to obey the orders was comparable with refusal to obey regulations that might originate in any properly authorized body appointed by the state to act for it.

Unified control of the development of Little River was established by the commission. Among the orders issued was one limiting the production to 1,600 bbls. for every 40-acre tract beginning with August 15 of last year. Because of the threats of the royalty owners to cancel the lease if it did not produce its wells to capacity, the Reiter-Foster Corp. secured a temporary injunction on August 30 restraining the Corporation Commission from enforcing its proration and drilling restrictions in this pool. This order was dissolved by Federal Judge Edgar S. Vaught on September 4, the authority of the corporation being upheld.

Used for Industry's Good

There is no question but that the authority of the Corporation Commission has been used for the good of the oil industry of Oklahoma as a whole during the past year.

The industry is now at the point where it must take a definite stand. Unified control of the development of pools has been offered as a solution to the problem of constantly recurring periods of overproduction and as a method of securing conservation of oil resources.

The question which calls for answer may be divided into two parts. First, what if any benefits may be secured from unified development of oil pools? If substantial benefits can be secured through such operation, we must then ask how such operation can be secured and at what cost. To state the second part of the question in another way, the oil industry is called upon to decide what price it is willing to pay for the benefits of unit operation. Let us consider the first part of the question now.

Arguments for Unit Plan

In speaking especially of his own plan of unit operation before the American Institute of Mining Engineers, Henry L. Doherty used the following words:

"I am prepared to say that if the unit plan is adopted we can recover at least double as much oil as we do now and can conserve at least 66⅔ per cent of our gas.

"I am also prepared to say that if the unit plan is adopted we will soon have many pools producing oil steadily and economically and all maintained in the condition which now characterizes flush production and in case of war our petroleum production can be increased overnight to take care of the increased needs of our Navy, our Army, and our industries."

More specific suggestions as to the benefits that might be expected through unit operation were made by I. L. Dunn and James O. Lewis before the same organization in 1926. Their remarks were not presented in support of any particular plan of unit operation but with the view of bringing out the advantages of unit development in general as they appeared to engineers. Their conclusions are of sufficient moment to warrant their presentation here.

1. A pool of oil is a natural unit no matter how large, and operations cannot be conducted independently without increasing costs and reducing both recovery and profits.

2. Important savings in the development and production costs can be made by reason of operating on a large scale without the necessity of undue haste and with the opportunity for carefully working out a development program in advance.

3. Important savings can be made in the number of wells drilled, which can be more effectively located to get the maximum production and to minimize the waste of gas and oil.

4. Unit development will also permit the use of improved production methods most of which rely upon the control of pressure in sand, including back pressure, stopcocking, gas or air lifts, holding in of gassy wells.

5. Under unit development artificial pressure can be applied earlier, and possibly the wells can be flowed throughout the life of the field. Production can be sustained over a longer period and can be controlled more in accordance with the price of oil, which would minimize the disastrous fluctuations in oil prices.

6. Profits would be increased, and, under conditions as at Cromwell, should be several times those realizable under competitive operation.

7. Unit development would be in the public interest, as it will increase and prolong the supply, will create more capital, and reduce the final cost of products to the consumer.

The claims advanced by these men and others who are well versed in the practical side of the oil business indicate a general feeling that the benefits of unit operation are great. Emphasis has been placed by many upon the greater efficiency in the use of gas associated with the oil in the producing horizon. Because of absence of general knowledge of the importance of this substance until the past three years, very little attention was paid to gas in the development of our major pools. It is impossible to cite examples of high recoveries from pools in which gas conservation has been practiced as against low recoveries in those in which it was wasted. Because of this supporters of unit operation are forced to rely largely upon laboratory data for their proofs of this point. However, the industry can make direct comparisons between the unit method of development and the competitive method of operation of individual pools in other regards that will assist very materially in bringing out their relative merits.

Possibilities Questioned

Perhaps the easiest way of making these comparisons is that of asking ourselves a series of questions about the possibilities of unified control as against the present system. Answers to these may overlap to some extent but some division in this way appears necessary if a clear presentation of the situation is to be secured. The questions that the writer would have the industry ask itself at this time are as follows:

1. Will unified control decrease the expenditures made in the developing of a new pool and in the proving of its limits?

2. Will the proposed method produce a greater yield of oil than is now being secured by competitive operations under the same conditions in other regards?

3. Will oil so produced be secured at a lower average cost than that now being secured by the industry?

4. Will the proposed method produce a greater ultimate yield over a long period of years?

5. Will unified control of developing pools permit operators to withhold their oil from the market during periods of temporary overproduction?

6. Will such control make it possible for producers to prevent the reoccurrence of periods of major overproduction and to withhold their oil from the market if such periods of major overproduction do occur?

In general it may be said that the cost of development of a given property is directly proportional to the number of wells drilled on that property and inversely proportional to the length of the development period. Few will question the first part of that statement. The second part may appear doubtful at first sight. Those who have just reclaimed the bills for the drilling of a well in which a series of fishing jobs held up operations for many months will definitely disagree. Yet, those who have been called upon to pay exorbitant haulage bills, premium prices for early deliveries of pipe and other essential equipment, double rates to drillers and drilling contractors, and drillers' wages to ordinary roustabouts, because of the absolute necessity of completing wells before the adjacent producer reached the sand in a competitively drilled area, will agree that the statement is correct in the great majority of cases.

Persia and Mexico

At the close of 1927 Persia had produced approximately 250,000,000 bbls. of oil. Practically all of that yield had come from the producing area at Maidan-I-Naftun, 150 miles north of the head of the Persian Gulf. The first well was completed in 1908 and actual shipments of oil began in 1913. The production rose slowly as the potential area was outlined by the Anglo-Persian Oil Co., reaching 35,000,000 bbls. in 1925. The yield was maintained at the same rate during 1926 and 1927. At the close of 1927 production was coming from only 50 wells. An additional group of 55 wells were connected to the pipe lines and ready to supply oil if the production was not sufficient. A number of additional wells had been sunk to the top of the producing horizon and shut down as there was no need for them. The productive area had been proven by these tests for a distance of more than 10 miles along the trend of the structure.

Up to the close of 1918 the history of development in Mexico was somewhat similar to that of Persia. The producing concerns were relatively few in number and their leases so distributed that they did not come into active competition with each other to any great extent. Production during the year was 63,000,000 bbls. This constituted but a small percentage of the estimated potential yield of the highly porous limestone horizon from which the oil was secured. Up to that time only 299 productive wells had been completed in Mexico. Dry holes numbered 512 but the greater part of these had been drilled in the Isthmuthian section or in places remote from the producing pools.

(Continued on Page 148)

*This is the fourth article in a series written especially for The Oil and Gas Journal by Ernest R. Lilley, Sc.D., associate professor of geology at New York University, leader of the oil executives' course at the Wall Street division of the university, and author of "The Oil Industry" and "The Geology of Petroleum and Natural Gas."

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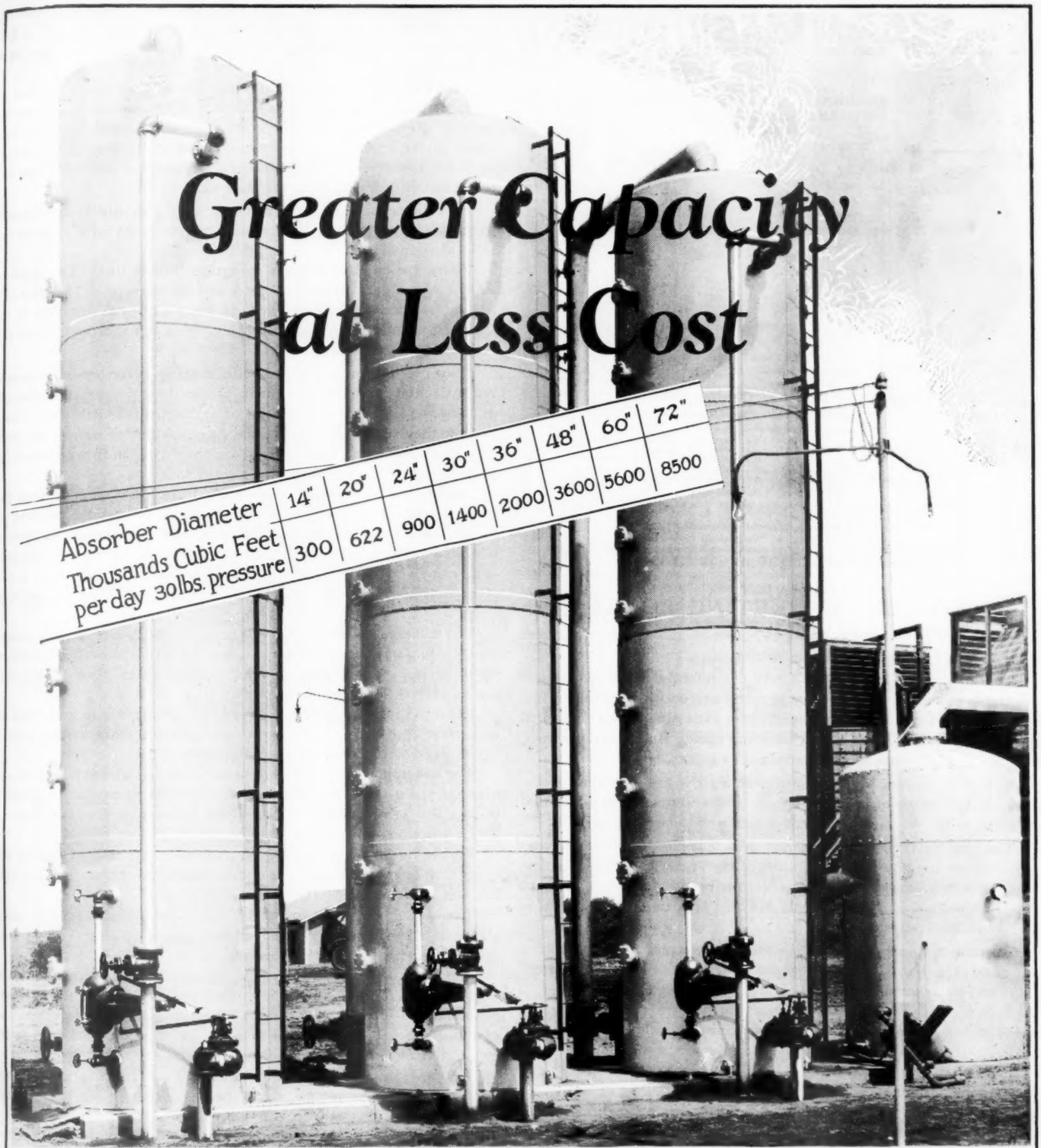

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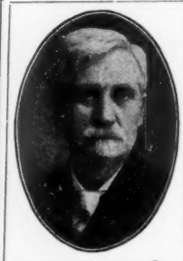

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NORMAL MARKETING ZONES

The refining industry is fixing the price of gasoline next summer by the size of its operations this winter.

Sane operations early in 1928 gave the refining industry its most profitable period in five years by keeping current production in line with current demand, thus preventing an excessive accumulation of stocks of gasoline during that winter and spring and insuring a good summer and fall movement at satisfactory prices.

Now it is necessary to put into practice the same orderly procedure, otherwise we may have a return of the unprofitable periods of 1927 and other years during the main consuming season of 1929.

The thoughtful refiner will not take a period of prosperity as justification for expansion of his refining facilities. He will first find out whether he will have a market for his increased production; taking into consideration not only his own position but the position of competing companies.

There is nothing in the picture today to warrant large expansion either in new plants or enlargements of those already in operation.

It can be calculated with certainty that there will be another 10 per cent increase in consumption this year but if some companies go ahead making plans for a 20 or 25 per cent increase, the difference between that 10 per cent assured increase and the 20 or 25 per cent excess manufactured will create a surplus which will ruin prices and react against the entire industry.

The refiner should take into consideration his normal marketing area as the basis for his calculations. This applies particularly to the refiners in the Mid-Continent and Southwestern areas. When these refiners as a group can keep their operations in line with the demand from their so-called normal marketing area they have a profitable operation, which is largely a matter of proximity to markets.

Marketing a surplus outside that normal area involves excess transportation charges which the refiners must absorb in whole or in part and is considered only when there is a surplus which must be disposed of without regard to cost of operations.

This has been very clearly shown in the ramifications of marketing factors in the Mid-Continent area in which there are several refining areas in which two or three have excess supplies which cannot be marketed in the normal consuming areas.

There is no plainer or more persistent folly than this idea that a surplus can be got rid of for what it will bring without in turn affecting the home market. Inevitably these "chickens come home to roost."

The surplus of one area dumped in another displaces just as much material in the one into which it is dumped, creating another surplus there which in turn is dumped somewhere else, bringing down prices until the cycle is completed and the original dumper finds his own area invaded by some other surplus and his prices flattened out in keeping with all the rest.

All this has been so often demonstrated it should be unnecessary to restate it but its significance must be reiterated until it is universally recognized.

There are hopeful signs of progress in this line. The appointment by President Reeser of the American Petroleum Institute of a national committee to examine into the petroleum situation in the United States is an essential preliminary to any thorough study and remedying of the matter.

This committee is charged with making a survey of estimated crude production in 1929; shut-in production; potential production in the several states; the amount of crude refined within each state and the disposition of the products; the amount of petroleum products sold within the state where manufactured, and the channel for disposition of the remainder.

President Henry M. Dawes of the Pure Oil Company says the ideal procedure in the regulation of production would be, first, to determine the amount of the products required; second to disseminate this information to the producers and to let them by mutual agreement after study of their situation determine just what sound economics would dictate should be supplied from each producing zone.

The difficulty in the past, Mr. Dawes tersely observes, has always been to convince the operators in one zone that the ultimate effect of the orderly regulation of their product is to benefit them and not unduly those in another zone.

With the facts as to production and consumption in each state or area assembled by this new national committee there will be a basis for discussion of some such arrangement.

The necessity for it and the justice of it has already been recognized in the discussion regarding stabilization of the world oil situation. Sir John Cadman's memorable address at Chicago stressed this point when he asked:

"Why should we not address ourselves to the task of finding for every market the nearest source of supply—the nearest taking into account all relevant economic considerations?"

The existing manner of distribution he described as "a clear waste of strength, a perpetual straining against the facts of geography, a lamentable lack of co-ordination."

President Dawes has spoken of "the ideal procedure" and while many may agree as to its being ideal they will maintain it is impractical. But exactly the same objections were made to the co-operation movement in curtailing the overproduction of crude oil and in holding throughput in line with the demand.

The oil industry, like many others these days, is finding that what had been regarded merely as ideal is proving the most practical and efficient when put into practice.

We may still be some distance from zoning distribution of petroleum products from the nearest source of supply but the manifest good sense of the idea makes it worth thinking about.

One step the refining industry can take right now by keeping its manufacturing operations in line with what is known to be the probable demand in the consuming area where each group can market its products profitably. Disposal of surplus regardless of cost, involving the absorption of excess transportation charges, is a clear waste of strength and worse than that because it inevitably reacts in lowered markets all around.

The absurdity of the situation is heightened by the fact that there is no public demand for petroleum products at such sacrifice prices. It is simply throwing away justifiable profits and involving

(Continued on Page 38)

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EDITORIAL

NORMAL MARKETING ZONES

(Continued from Page 36)

the industry in unnecessary losses that could be avoided by a common sense study of the facts.

Competition has run riot in the oil industry and has time and again brought it to the verge of ruin. If this competition was forced upon the industry by declining demand there might be some explanation for it. But demand increases steadily year after year. The consumers are satisfied with the products and their price and have paid more without grumbling, satisfied they were getting their money's worth and more.

Yet the industry, through senseless effort for volume of business regardless of profits, has repeatedly plunged itself into depression to the point of practically giving away its products and at the same time wasting its resources in unnecessary excess transportation charges.

The new national committee has an unparalleled opportunity to serve the industry by providing leadership out of this morass.

PROSPERITY OF OIL INDUSTRY DEPENDS ON CONTROL OF OUTPUT

By W. S. Farish
President, Humble Oil & Refining Co.

For the American petroleum industry 1928 was distinguished principally by the development of a potential current supply of crude oil vastly in excess of any possible current demand and by signal success of the initial step of the industry as a whole toward real conservation of its raw material for essential uses.

The new year will be prosperous in direct proportion to the success of the industry in conserving and restraining production.

For the first time in its history the industry deliberately refused last year to produce and sell each day every barrel of oil it could possibly bring to the surface.

Today, also for the first time in its history, the industry can point to known reserves of petroleum in the ground, developed but not being produced, in quantity commensurate with the nation's anticipated requirements over a period of years.

In past years oil constantly has been produced and forced on to the market under fiercely competitive conditions as rapidly as it was humanly possible to find it, regardless of price and regardless of demand for essential uses. But in 1928 producers succeeded, through widespread co-operation and active assistance of state and federal governments, in restraining and holding production nearly in balance with consumption.

As a direct result of these efforts conditions within the industry actually improved a little as the year advanced in spite of the potential overproduction of far larger proportions than the industry ever has faced before.

Crude and products sold at or below cost of production during the first six months, leaving only transportation and distribution on a modest profit basis. But as control of supply came to be felt during the second half refiners were able to balance runs against current demand and thus secure a reasonably profitable price for gasoline. There followed even a slight increase in the price of crude, all due to conservation and control of supply.

Important progress attended efforts to increase the efficiency and decrease the cost of retailing gasoline. Likewise, refining technique advanced.

A larger proportion of our gasoline has been secured by the so-called crack-

(Continued on Page 135)

High Spots in Field News

SOUTHWEST TEXAS

Joe Bruner Field now above 10,000 bbls.

GULF COAST

New deep pay found in Humble Field.

NORTH LOUISIANA

Ohio Oil Co. gets good well at Champagnolle.

NEW MEXICO

Empire Co.'s Lea County test running higher than discovery well.

MICHIGAN

Show of oil reported in Newago County well, 17 miles northeast of discovery well in Muskegon Field.

NORTH TEXAS

Brighter outlook for Haskell County, new producing county in north Texas. Jack County may have a considerable pool.

CALIFORNIA

Failure to find Nordstrum or Buckbee zones in western part of Santa Fe Springs may lead to rush to drill to Miocene, highly prolific at Long Beach.

KANSAS

T. B. Slick and O. J. Connell well in Sedgwick County may have found new pay.

Wichita oil pool extended to northwest.

Marland Co.'s Goodrich well in northeast Sedgwick Pool flows 115 bbls. an hour.

WEST TEXAS

Extensions reported to western extension of Roberts Pool, Howard County.

Second well added to O'Brien Pool, south Winkler County.

Yates allowed production likely to be increased to 100,000 bbls. by January 16.

OKLAHOMA

St. Louis Pool produced 126,884 bbls. from 211 wells Tuesday morning.

Wells in Maud and Mission Pools reported running low.

Cromwell sand pool may be developed in South Little River. Good well in East Little River.

Operators in Allen Field decide to go ahead with drilling program to Wilcox sand.

Operators in Oklahoma City Pool agree upon plan to drill 26 wells.

Hearing on New Code By Federal Commission At St. Louis, Feb. 11

WASHINGTON, D. C., Jan. 8.—A trade practice conference for the petroleum and petroleum products industry has been authorized by the Federal Trade Commission and will be held Tuesday, February 11, in St. Louis at the Statler Hotel. Commissioner Edgar A. McCulloch will preside. Among practices proposed for discussion at the trade practice conference are: Interference with existing contracts; substitution of one grade of product for another; lottery schemes; sales from trucks; regulation of loaning or leasing gasoline pumps, tanks and equipment; discontinuance of such practices as the building of driveways and other extraordinary free services; leasing filling stations at abnomally low rents, or the subleasing of such stations for the purpose of price-cutting or rebating.

The American Petroleum Institute made application for the conference. All members of the oil industry are welcome to attend whether or not they receive a formal notice.

OKLAHOMA-KANSAS OIL MEN TO DISCUSS BILLS

A meeting of the executive committee of the Oklahoma-Kansas division of the Mid-Continent Oil & Gas Association held in Tulsa on Tuesday, January 8, for the purpose of considering proposed oil and gas legislation prepared by the conservation committee of the Mineral Section of the American Bar Association resulted in the adoption of a motion introduced by Rush Gleenslade, vice president of the Gypsy Oil Co., which calls for two open meetings to be called by the president of the Oklahoma-Kansas division at which all bona-fide oil producers and royalty owners in the States of Oklahoma and Kansas shall be invited to discuss the merits of the bills.

The decision on this procedure came after three hours of discussion regarding both the practical and legal aspects of the bills. James A. Veasey, general counsel for the Carter Oil Co., who was a member of the committee which prepared the bills, spoke at length regarding the time and care which had been given to the preparation of the bills, and the purposes which they sought to serve. Mr. Veasey, speaking upon current conditions in the industry stated that the bills were primarily designed to meet "an impossible economic predicament of oversupply in the oil industry, which seemed to be constantly increasing."

W. S. Fitzpatrick, chairman of the board of directors of the Prairie Oil & Gas Co., was another speaker in favor of the adoption of some form of legislation for the protection of the industry. Mr. Greenslade spoke in opposition to the bill.

According to the decision of the executive committee, J. C. Denton, president of the Oklahoma-Kansas division of the Mid-Continent Oil & Gas Association, will within the next two weeks call two separate meetings, one for all bona-fide oil producers and royalty owners of the State of Oklahoma and another for bona-fide oil producers and royalty owners of the State of Kansas to consider and pass on the questions involved by the proposed legislation.

AGREE ON 26 TESTS FOR POOL AT OKLAHOMA CITY

The business of conservation in the Oklahoma fields alternately received a set-back and made some progress this week when the operators in the Allen Field decided to go ahead with a drilling program to the Wilcox sand, and the operators in the Oklahoma City Pool agreed upon a drilling plan under which 26 wells will be drilled.

The decision to test out the Allen Wilcox sand possibilities was made when it was apparent that some operators would go ahead and drill their properties. The Sinclair Oil & Gas Co., owner of the Wilcox sand discovery well in the pool, will accordingly throw its well wide open this week, and it seems probable that 10 new wells will be started with the Wilcox sand as the destination. The discovery well in this horizon in the Allen Pool is the Sinclair Oil & Gas Co.'s No. 2 Amos in Section 5-7-8. It penetrated the Wilcox sand last September, finding the pay from 4,180-81 feet, and began flowing 37 bbls. an hour. It was shut in immediately, and has never been opened since discovery.

With the estimated cost of the Oklahoma City wells placed at $150,000 (without any acreage cost) the new campaign which will be started means that almost $4,000,000 will be expended in the drilling of the 26 wells. The work on the wells may start at once under the terms of the operators' agreement. The owners of leases in this district will drill the wells as follows: Indian Territory Illuminating Oil Co. and Foster Petroleum Co., 14; Hall & Briscoe, 1; Coline Oil Co., 3; W. R. Ramsey, 2; T. B. Slick, Inc., 1; Shell Petroleum Co., 1; Amerada Petroleum Corp., 1; Sinclair Oil & Gas Co., 1, and Wirt Franklin Petroleum Co. and others, 2.

Brighter Outlook in Haskell County

New Well in Area in North Texas May Be Better Producer Than Discovery Well. Jack County Expecting Pool

By James H. Dameron
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Jan. 7.—A brighter outlook for Haskell County, a new producing county to North Texas, appears with the semicompletion of Superior Oil Co.'s second well in the southeast part of the county. Jack County, also in the Wichita Falls district, is commanding more attention, while the Panhandle and Ranger districts marked time during the week.

Superior company's No. 2 Reynolds Cattle Co., one location west of the discovery well in the northeast part of the Antonio Rodriques Survey in southeastern Haskell County, has the earmarks of being a much better producer than the discovery well. After penetrating 1 foot of sand topped at 1,743 feet it made 30 bbls. in one and a half hours and was shut in because of the shortage of storage.

The oil tested 36.9 gravity. Only two wells have thus far been drilled in that area and it is distantly removed from a pipe line. Consequently what crude is being produced is being turned into lease storage.

It will be recalled that Moody Oil Corp. assembled a block in this survey and drilled a test to around 1,700 feet and shut it down. After some time the well was deepened a few feet and opened a new pool. It was the first commercial production for Haskell County.

About that time Superior Oil Co. was on a deal to buy the Moody corporation stock and the Haskell County acreage was included. The discovery well was completed November 17, 1928, in sand at 1,728½-32 feet and made around 60 bbls. initial. Its production settled to around 46 bbls. a few days later. Its offset, however, is estimated to be a well capable of making around 400 bbls. The discovery well was reported to be making a little water but this was denied by Superior company lease men.

Jack County Pool

The area around Bryson in Jack County is being more and more favored and in the opinion of some geologists a pool of considerable consequence may be developed somewhere in that area. Two wells were completed in that territory within the past week, one good for 231 bbls. and the other good for around 260 bbls. Late in the week Panhandle Refining Co. was completing the west offset to its No. 1 and it appears to be good for around 250 bbls. daily.

This territory was leased fairly solidly for several miles around Bryson a short while after the completion of the first well. With the completion of more wells in the area acreage was more in demand. Followers of the territory look for long life production, basing the belief upon the fact the wells that have been completed are holding up remarkably well.

Wilbarger and Wichita

Wilbarger County continues to lead in the Wichita Falls district in flush production but is being hard pushed by Wichita County. Four wells were completed in the former county with an average of 185 bbls. per well while the five new producers in Wichita County averaged 125 bbls. United Producers Co. completed the banner well of the week with its No. 6 Hodges-A. It swabbed and flowed 500 bbls. from sand at 1,406½-88½ feet and made 320 bbls. on the pump.

Wichita Falls district has resumed its normal stride in development following the holidays and Cooke County's new activity is adding to the total of operations in that district. Ranger district maintains its lead in that respect in North Texas, however, with the Panhandle bringing up the rear.

Deeper drilling has not yet improved the Barnsdall Oil Corp.'s test north of the Armstrong Pool in Moore County. Late in the week it was drilling at 3,240 feet and swabbing 15 bbls. To the west of the producing territory Dixon Creek Oil Co.'s No. 1-A Sneed, on its recently acquired property, found 50 feet of oil at 3,304-05 feet and is reaming to set casing.

Panhandle's One Completion

The single completion reported in Panhandle last week was Phillips Petroleum Co.'s first well in that pool. No. 2 Sneed (James) was shot with 80 quarts at 3,176 to 3,207 feet and responded by making 75 bbls. daily. The well was rated as a 30-bbl. producer before the shot.

Over in the Lefors area of Gray County, Skelly Oil Co.'s No. 2 Saunders has the earmarks of being one of the best wells to be completed in that sector in several weeks. The well is in Section 4, Block 1, east of the Lefors townsite, and made 415 bbls. in 8½ hours from granite wash pay at 2,575-85 feet, when tested.

All three of the districts showed declines in daily average production. Panhandle was off 90 bbls., Ranger's production was down 25 bbls., while Wichita Falls district fell 479 bbls. to pull the total decline down 594 bbls., and the district's daily average below the 200,000-bbl. mark.

Estimated Daily Average Production
NORTH TEXAS
Week Ending January 5, 1929

Panhandle district—	Bbls.
Carson County	5,825
Gray County	21,960
Hutchinson County	27,665
Moore County	2,335
Potter County	20
Wheeler County	800
Total this week	58,605
Total last week	58,695
Decrease	90
Wichita Falls district—	
Archer County	18,301
Baylor County	81
Clay County	468
Cooke County	2,203
Jack County	1,954
Montague County	7,453
Throckmorton County	680
Wilbarger County	29,395
Young County	7,882
Wichita County	29,390
Total this week	97,807
Total last week	98,286
Decrease	479
Ranger district—	
Brown County	9,617
Callahan County	3,607
Coleman County	3,826
Comanche County	1,210
Palo Pinto County	405
Ranger	5,782
Shackelford County	11,212
Stephens County	7,399
Total this week	43,058
Total last week	43,083
Decrease	25
Grand total this week	199,470
Grand total last week	200,064
Decrease	594

WILDCAT OPERATIONS IN TEXAS PANHANDLE

For week ended January 5

Company, Well, Farm, Name, Section and Block—	Remarks—
CARSON COUNTY	
Denson et als' No. 1 W. E. Cobb, 930 ft. from N line, 280 ft. from E line, W½ NW, Sec. 184, Blk. 2, I.&G.N. Sur.	S.D. 725 ft.
Duncan & Reiger's No. 1 J. B. Hodges, 330 ft. from E line and 330 ft. from S line, W½ NW, Sec. 112, Blk. 7, I.&G.N. Sur.	Rig on ground.
Holmes et als' No. 1 Quinn, 330 ft. from S and 330 ft. from E line SW, Sec. 7, Blk. 9, I.&G.N. Sur.	Rig.
Magnolia Pet. Co.'s No. 6 fee No. 244, 660 ft. from N line and 660 ft. from E line E½, Sec. 91, Blk. 4, I.&G.N.R.R. Sur.	Drlg. 2,710 ft.
Morris et als' No. 1 Barnard, NW cor. SW SE, Sec. 44	Fishing 889 ft.
Navajo Oil Co.'s No. 2 Poling, 660 ft. from W and 330 ft. from N lines, N 30 ac. SW, Sec. 22, Blk. X-2, T.T.R.R. Sur.	Drlg. 3,100 ft.
Reynolds et als' No. 1 E. Cooper, 330 ft. from S line and 330 ft. from E line NW, Sec. 5, Blk. 9, I.&G. N.R.R. Sur.	Drlg. 495 ft.
Spartan Oil Co.'s No. 1 S. Bednorz, NW cor. E½ NW, Sec. 202, Blk. 3, I.&G.N. Sur.	Rig burned 2,165 ft. and S.D.
Skelly Oil Co.'s No. 10 Schafer, 1,320 ft. from W line and 330 ft. from S line of N½, Sec. 188, Blk. 3, I.&G.N.R.R. Sur.	Drlg. 2,350 ft.
Stubblefield et als' No. 1 Cooper, 340 ft. N and 330 ft. W line SE, Sec. 5, Blk. 9	Drlg. 2,700 ft.
Travis et als' No. 1 D. A. Harrell, C NE NE, Sec. 162, Blk. 7, I.&G.N. Sur.	Fish. 2,510 ft.
Ware et als' No. 1 Ware, 990 ft. S and 400 ft. E NW cor. Sec. 18, Blk. 3, A.B.&M. Sur.	Drlg. 1,700 ft.
CASTRO COUNTY	
Colorado O. & R. Co. No. 1 M. Slemmons, SW cor. Sec. 73, Blk. M-17, B.S.&F. Sur.	Rig blown down.
Mystery Oil Co.'s No. 1 J. I. Crum, SE cor. NE, Sec. 333, Blk. M-6, S.K.&K. Sur.	S.D. 510 ft. for csg.
CHILDRESS COUNTY	
C. L. Sloane et als' No. 1 B. P. Smith, Sur. 49, F. P. Knott lands	S.D. 4,005 ft.
The Texas Co.'s No. 1 Smith, 100 ft. each way from NW cor. Sec. 174, Blk. H, W.&N.W. Sur.	Hole full sulphur wtr. 3,985 ft; S.D. 4,605 ft.
COCHRAN COUNTY	
Clark & Melat's No. 1 C. C. Slaughter, 1,650 ft. E and 660 ft. S of NW tract, League 118, Knox County School land	Rig blown down.
Marland Prod. Co.'s No. 1 C. C. Slaughter, 330 ft. from S and W lines, Carson County School land, Tr. 130	Fish. 1,550 ft.
COTTLE COUNTY	
Explin. Co.'s No. 1 Richards	C.O. 1,620 ft.
Explin. Co.'s No. 4 Matador Land & Cattle Co., C, Sec. 46, J. H. Stephens Sur.	Fish. 2,940 ft.
Skelly Oil Co.'s No. 1 J. H. Cannon	H.F.W. 3,558 ft; drlg. 3,900 ft.
Sun Oil Co.'s No. 1 T. B. Yarborough, 485 ft. S and 2,460 ft. E NW cor. Sec. 551, Blk. H, W.&N.W. Sur.	S.D. 3,400 ft.
DONLEY COUNTY	
Beaudoin et als' No. 1 Ball, 1,075 ft. from N line and 985 ft. from E line, Sec. 22, Blk. E, D.&P.R.R. Sur.	Location.
GRAY COUNTY	
B. S. Arnold's No. 1 J. E. Mingale, C E 160 ac., Sec. 212, Blk. B-2, H.&G.N. Sur.	S.D. 1,412 ft.
Arnold & Howell's No. 1 Turnex, C SW, Sec. 111, Blk. B-2	S.D. 2,224 ft. for pipe.
Camel Oil Co.'s No. 1 Harrah-B, 330 ft. each way from NW cor. NE, Sec. 150, Blk. 3, I.&G.N. Sur.	Cellar.
Crabtree Drlg. Co.'s No. 1 B. F. Talley, SW NE, Sec. 114, Blk. M-2, B.S.&F. Sur.	S.O. 2,400 ft; S.D. 2,735 ft.
Constantine et als' No. 1 Dial, 330 ft. S and E of NW cor. W½ NW, Sec. 32, Blk. 25, H.&G.N. Sur.	Location.

(Continued on Page 101)

PANHANDLE COMPLETIONS

Moore County

Phillips Petroleum Co.'s No. 2 J. T. Sneed (James) 660 feet south and 330 feet west of the northwest corner J. H. Proctor Survey, was drilled to a total depth of 3,212 feet, shot with 80 quarts at 3,176 to 3,207 feet and made 75 bbls.

RANGER DISTRICT COMPLETIONS

Brown County

Amerada-Roeser & Pendleton's No. 1 Mauldin was dry and abandoned at 1,433 feet. Humble Oil & Refining Co.'s No. 17-A Hodnett made 4 bbls. at 1,198-1,215 feet. Mitcham and others' No. 1 Marr made 10 bbls. at 1,040-53 feet. Young Brothers and Alexander & Woodley's No. 7 Armstrong was shot with 20 quarts at 1,187-1,224 feet and made 85 bbls. Their No. 3 Butler made 25 bbls. at 1,247-57 feet. Betts and others' No. 1 Merritt was dry and abandoned at 1,003 feet. Bruce's No. 4 Shields made 5 bbls. at 475-99 feet. Paramount Oil Royalties, Inc.'s No. 1 Mayes made 10 bbls. at 545-54 feet. Gore & Brown's No. 1 Mayes made 250,000 feet of gas at 377-406 feet and was drilled to a total depth of 720 feet.

Callahan County

Beddingfield and Welch Brothers' No. 5 Cavanaugh was dry and abandoned at 544 feet. Ewmo Oil Corp.'s No. 1 Jones was dry and abandoned at 517 feet. Mead & Hoffman's No. 1 Cowling was dry and abandoned at 990 feet. Reiter Foster Oil Corp.'s No. 7 Hatchett was dry and abandoned at 410 feet. Its No. 15 Hatchett was dry and abandoned at 965 feet. The Texas Company's No. 13 Hatchett made 20 bbls. at 346-60 feet. Its No. 14 Hatchett made 18 bbls. at 346-55 feet. Its No. 15 Hatchett was dry and abandoned at 367 feet.

Coleman County

Anzac Oil Co.'s No. 1 Alexander made 120 bbls. at 2,298-2,306 feet. Head's No. 1 Gray was dry and abandoned at 377 feet. Midwest Exploration Co.'s No. 2 Gill was dry and abandoned at 1,088 feet. The Texas Company's No. 4 Hayes made 45 bbls. at 1,109-39 feet.

Eastland County

Parsons and others' No. 4 Scott was shot with 40 quarts at 3,107-24 feet and made 4,500,000 feet of gas, 640 pounds rock pressure. Schimmel Production Co.'s No. 1 Parsons was dry and abandoned at 3,559 feet.

Stephens County

Texas Pacific Coal & Oil Co.'s No. 11 Hancock made 22 bbls. at 3,200-40 feet.

Shackelford County

Atlantic Oil Producing Co.'s No. 1 Green was dry and abandoned at 1,253 feet. Cranfill & Reynolds' No. 2-B Flippen was dry and abandoned at 985 feet. Midsun Oil Corp.'s No. 2 Nail was dry and abandoned at 1,595 feet. Simms Petroleum Co.'s No. 3 Lones made 50 bbls. at 792-94 feet. Tannehill Oil Co.'s No. 1-29 Matthews was dry and abandoned at 1,140 feet.

WICHITA COMPLETIONS

Week Ended January 5

Archer County

Perry Browning's No. 1 fee was dry and abandoned at 880 feet. Reno Oil Co.'s No. 6 Parrish-A was dry and aban-

(Continued on Page 134)

WORD IN ADVERTISEMENT OF METTLER CO. OMITTED

In the Lee B. Mettler Co. advertisement on page 65 of this issue the word "inferior" was inadvertently omitted from the third sentence. This sentence should have read, "You will soon lose in other ways many times what you try to save by installing inferior gas burners."

Western Extension of Roberts Pool

Second Well Added to O'Brien Pool. Deepest Well Making New Production Record. New Locations in Fisher County

By James H. Dameron
Staff Correspondent, West Texas Fields

FORT WORTH, Tex., Jan. 7.—Extension tests in the western extension of the Roberts Pool of southern Howard County were among the more noteworthy developments of West Texas during the week while wildcats in several districts were engaging interest because of their findings. West Texas production went up 7,600 bbls. last week and another 27,500 bbls. will probably be added to the allowed production of the restricted areas by January 16 if the Railroad Commission follows the recommendation of its Yates Pool Advisory Committee.

Three miles west of the main producing area of the Roberts Pool two wells extended the producing zone a quarter of a mile south and east, respectively. Early in the week Marland Production Co. and Texon Co.'s No. 6 Settles-A, a quarter of a mile south and one location east of the discovery well and located in Section 6, Block 32, Township 2s, swabbed and flowed 444 bbls. in 12 hours from pay at 2,210-15 feet. The first 18 hours after being on the pump the well made 615 bbls. and Sunday it pumped 560 bbls. on a full 24-hour gauge. The owners' south offset to this well is being standardized at 2,127 feet.

More than a quarter of a mile to the east Marland and Texon companies' No. 4 Settles, Section 133, Block 29, seems to be running a little higher than the discovery well. It has 1,800 feet of oil in the hole from 2,197 feet. At 2,140 feet the well made one boiler of oil per hour and topped another pay at 2,197 feet. The discovery well, drilled by Henshaw Oil Corp. and later sold to American Maracaibo Co., made 5,232 bbls. at 2,208-48 feet and opened the 2,200-foot lime zone to production as well as extending the Roberts Pool westward.

East of Discovery Well

East of the discovery well, American Maracaibo Co.'s No. 2 Settles-C had a solid lime pay from 2,204 to 2,486 feet and the entire 282 feet of lime is reported to have been saturated. This well had another show at 2,750 feet and is shut down at 2,915 feet. It is to be drilled to 3,500 feet to satisfy a contract requirement made when the acreage was obtained.

To some of the students of that country, Plymouth Oil Co.'s No. 1 Kloh and others, NE SE SW Section 5, Block 32, Township 2s, appears at this stage of drilling to be higher than the discovery well. On the big water strata at around 800 feet the well is approximately 100 feet higher than the Henshaw well. However, the water strata is not accepted as a definite marker in that territory.

Elsewhere in this issue is a plat showing the acreage and development in the Settles extension of the Roberts Pool.

O'Brien Pool

The second well was added to the O'Brien Pool in southern Winkler County when Wentz Oil Corp.'s No. 1 Tobe Morton, SE cor. NE SE Section 27, Block B-12, started flowing 30 bbls. hourly by heads from pay at 3,005 feet. This well had a pay at 2,842 feet, but the big increase was at 3,003-05 feet. It is north of the discovery well.

In the same pool, but to the south of the discovery well, Simms Petroleum Co. and Southwest Development Co.'s No. 1 Sealy, SE NE Section 50, Block F, topped the lime at 2,676 feet. This is approximately 30 feet lower on the lime than the discovery well, but 24 feet higher than the east offset to No. 1 Sealy being drilled by Gulf Production Co. Gulf company has cleaned up a fishing job in No. 3 O'Brien at 2,900 feet and is making half a bailer of oil per hour from 2,890 feet.

Montcrief, Zoch and associates' No. 1 Tippett, Section 45, Block 31, H.&T.C. Survey, Crockett County, encountered about 2,000,000 feet of sweet gas at 1,150-53 feet, but sprayed a little salt water at 1,160 feet. The sweet gas is unusual for that territory and it has increased in volume to around 4,500,000 feet. Monday the well was drilling in brown lime and anhydrite at 1,438 feet.

About 9 miles southwest of Owens and associates' No. 1 Mills in Val Verde County, Val Vert Oil Co.'s No. 1-A Bassett, Section 47, Block Y, is drilling in shale at 2,300 feet and making enough gas to fire the boiler. No. 1 Mills had around 1,000,000 feet of gas at 2,500 feet.

Big Lake Oil Co.'s No. 1-B University, the world's record deep producer, has climbed to a new peak of 1,437 bbls. of 55.5-gravity oil and seems to be showing no signs of halting its upward stride. The well has increased from 40 bbls. daily when it topped the rich pay at 8,520 feet early in December.

More interesting news from Ward County is expected within the next week. Talbot & Dittman and Atlantic company's No. 1 Dorr, south of the Shipley and associates' Ward County producer and located in Section 9, Block 5, is drilling in broken lime at 2,455 feet and expected to tell its story shortly. The Shipley well is holding up around 100 bbls. daily.

J. H. L. Oil Co. is moving in material for a test on the same section on which the Shipley well was drilled. It will be in the W of the S of Section 17, Block 5.

An unusual number of new locations were reported in Fisher County last week, all of which will be found in the West Texas wildcat drilling report, and indicate the trend of development that is expected in Fisher and Jones County during 1929.

Runs to Storage

Addition of the Atlantic Pipe Line Co.'s outlet in West Texas reflected itself in reducing the runs to storage in West Texas for the period covered by the distribution report. However, the reduction of runs to storage was less than 3,000 bbls., as the runs amounted to

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Plat of the Settles Extension of the Roberts Pool in southern Howard County which was extended both to the south and east. The area is approximately 3 miles west of the Roberts Pool.

WILDCAT OPERATIONS IN WEST TEXAS

Week Ended January 5

Company, farm and location—	Remarks—
ANDREWS COUNTY	
Deep Rock Oil Co.'s No. 1 Hostetler, 2,310 ft. N and W of SE cor. Sec. 20, Blk. A-46	Hole full water 1,390 ft.; total depth 1,630 ft.; underreaming 10-in. casing.
BORDEN COUNTY	
Condor Oil Co.'s No. 1 E. A. Hall, 1,650 ft. S and W of NE cor. Sec. 5, Blk. 32, Twp. 3n, T.&P. Sur.	Top salt 1,235 ft.; set 6-in. casing 1,805 ft.; drlg. 3,705 ft.; hole full water.
Teas & Wheeler's No. 1 Long, 1,320 ft. N and E of Sec. 27, Blk. 30, T. & P. Sur.	Location.
BREWSTER COUNTY	
E. W. Bateman et al's No. 1 Nevill, 2,000 ft. from S line and 1,000 ft. from W line of Sec. 64, Blk. 13, G.H.& S.A.R.R. Sur.	Drlg. 1,130 ft.
Brewster Oil Co.'s No. 1 fee, 2,640 ft. S and 2,598 ft. E of NW cor. Sec. 4, Blk. G-15, G.C.&S.F.	Rigged up and shut down.
Cowden & Bowser's No. 1-A Jackson & Harmon, Sec. 1, Blk. 331, T.C.R.R. Sur.	Set 8-in. 1,530 ft.; shut down 2,000 ft.
Forrest Oil Co.'s No. 1 Skinner, C SW SE Sec. 100, Blk. 2, G.C.&S.F. Sur.	Shut down 1,145 ft.
J. M. Hickey's No. 1 Jackson & Harmon, NE cor. Sec. 182, Blk. 9, G.H.&S.A. Sur.	Shut down 1,150 ft.
Van McPhail's No. 1 McIntyre, SE cor. Sec. 59, Blk. 352, 7 mi. S of Alpine	Shut down 1,740 ft.
Williams and others' No. 1 Poncey, 459 ft. S and 1,062 ft. E Sec. 26, Blk. 214, T.&St.L.R.R. Co.	Shut down 515 ft.
COKE COUNTY	
Cates & Dennis' No. 1 Mimms, 2,500 ft. S and 330 ft. E of NW cor. Sec. 47, Blk. 4, T.&P. Sur.	Shut down 1,465 ft.
Lipan Oil Co.'s No. 1 E. C. Rawlings, Sec. 390, Blk. 1-A, H.&T.C. Sur., elev. 2,750 ft.	Shut down 2,860 ft.
Louisiana O. & R. Co.'s No. 1 Powers, 745 ft. S and 2,310 ft. E of NW cor. Sec. 156, Blk. 2	Hole full water 2,980 ft.; underreaming casing 3,373 ft.; underreaming 3,524 ft.
Mid-Kansas Oil Co.'s No. 1 W. E. Lackey, 330 ft. N and E of SW cor. Sec. 272, Blk. 1-A, H.&T.C.	Underreaming 2,890 ft.
CONCHO COUNTY	
Exploration Co.'s No. 2 Hartgrove, 900 ft. S and 985 ft. E of NW cor. Johann Scheuch Sur. No. 240	Rig.
Loyd Jones Co.'s No. 1 Jones, 420 ft. S and 15 ft. E of NW cor. John G. Reh Sur. No. 1,878	Shut down 150 ft.
Posey's No. 1 Elvidge, C NW Sec. 39, H.&T.C.R.R. Sur.	Shut down 300 ft.
CRANE COUNTY	
Duffey and others' No. 4 Cowden, 1,320 ft. S and 440 ft. W of Sec. 18, Blk. X, C.C.S.D.&R.G.N.G.	Rig.
Gulf Prod. Co.'s No. 7 Crier-McElroy, 330 ft. N and E of SW cor. Sec. 196, Blk. F, C.C.S.D.&R.G.N.G. Sur.	Drlg. 2,182 ft.
Gulf Prod. Co.'s No. 59 Crier-McElroy, 330 ft. S and E of NW cor. Sec. 195, Blk. F, C.C.S.D.&R.G.N.G. Sur.	Top salt 1,110 ft.; drlg. 2,182 ft.
Gulf Prod. Co.'s No. 6 Waddell, C NW NE Sec. 12, Blk. B-25	Drlg. 102 ft.
CROCKETT COUNTY	
Barbara Oil Co.'s No. 1 Cox, 237 ft. S and 1,190 ft. E of NW cor. R. B. Dickenson Sur.	Show gas 1,000 ft.; shut down 1,290 ft.; flowing water.
Lewis & Daniels' No. 1 Pecos River Bed, 19 yards S and 37 degrees E of NW cor. Sec. 33, Blk. 1, I.&G.N. Sur.	Location.
W. W. Donnelly & Young's No. 1 Shannon, SW SW SE Sec. 42, Blk. BB, T.C.R.R. Sur.	Cleaning out 1,719 ft.
W. W. Donnelly & Young's No. 1 Middlebuster, C Sec. 11, Blk. 9, D.&S.E. Sur.	7,000,000 ft. gas at 1,663 ft.; shut down 1,690 ft.; small oil show.
Moncrief, Zoch et al's No. 1 J. H. Tippett, 330 ft. from C NE line Sec. 45, Blk. 31, H.&T.C.R.R. Sur., but in Sec. 1, Blk. JH	Top salt 640 ft.
J. D. Wheeler's No. 1 State Land, 744 ft. S and 1,250 ft. E from SE cor. Sec. 73, Blk. 1, I.&G.N.R.R. Sur., but in Vacancy Strip	Drlg. 337 ft.
CULBERSON COUNTY	
Deep Rock Oil Co.'s No. 2 Seay, 200 ft. N and 250 ft. E of CSL Sec. 20, Blk. 59, T.&P. Sur.	Set 10-in. casing 1,137 ft.
Hickey & Stiver's No. 1 C. O. Finley, 660 ft. N and 1,980 ft. W Sec. 20, Blk. 82	Hole full water; small oil show 1,331 ft.; pipe set 1,418 ft.; total depth 1,660 ft.

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From an article by C. O. Willson in
The Oil and Gas Journal, issue of November 29, 1928

"The only remedy suggested for the fuel oil problem is a further increase in cracking facilities for the purpose of reducing the quantity of fuel oil available."

All competent authorities agree on this point The surest way to help stabilize the industry—and at the same time increase the net refinery profits—is by the Dubbs Cracking process—operating by the non-residuum method, which means the greatest amount of gasoline from the least amount of crude

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

Storm Slows Up Oklahoma Operations

Wells in Maud and Mission Pools Reported Running Low. Cromwell Sand Pool May Be Developed in South Little River. Good Well for East Little River

By J. L. Dwyer
Staff Correspondent, Oklahoma Fields

During a very quiet week in which weather conditions hampered field operations greatly, there were few important well completions, and the daily average output of the Oklahoma fields slumped slightly. The slump may be attributed partly to the severe storm which raged throughout the eastern portion of the State, and which was accompanied by the first important snowfall of the year.

The entire production of the State declined 4,230 bbls., and, considering the immediate future of the State from a productive standpoint, it seems that the loss will be temporary, and that it should be regained next week.

The Greater Seminole area produced 276,829 bbls. from 1,315 bbls. on Monday morning of this week. The output by pools follows:

	Wells	Bbls.
Little River	320	91,030
Maud	27	25,499
Mission	13	675
Bowlegs	312	42,539
Earlsboro	293	68,229
Seminole	282	39,869
Searight	68	8,988
Total	1,315	276,829

The Maud and Mission Pools are still the most interesting spots in the Seminole region, and last week has seen a number of wells running sufficiently low to dim the prospects of these pools. There are sufficient wells running low in the Maud and the Mission Pools to reduce the potentialities of both operations, and to slow up the drill in all but the parts of the pool which may be regarded as proven or semiproven.

The Little River and the Earlsboro pools registered slight increases in the weekly averages, and the Maud area also had a few good completions which brought the weekly average for that area up slightly, but in the remainder of the pools there was nothing of a sensational nature.

South End of Little River

In the south end of the Little River Pool the possibilities of a good Cromwell sand being developed still loom well, and there are a number of tests being drilled for Cromwell production in this region which have reached the interesting stage and which should be completed within the next 10 days. In this region T. B. Slick's No. 2 Wood, NW cor. NE SW Section 26-7-6, had the Gilcrease sand at 3,189-90 feet, with some gas and oil. The well flowed 345 bbls. the best day last week. The fact that oil has been found in the Gilcrease horizon as well as the Cromwell sand in the South Little River Field is interesting, but unless wells are found having a production better than 345 bbls. there is slight chance of any drilling activity with this formation as a destination.

The first well in this region which found Cromwell sand production was T. B. Slick's No. 1 Wood in Section 26-7-6. This well flowed 1,500 bbls. of fluid daily which was two-thirds oil and one-third water and b.s. There always was considerable argument regarding the origin of the water, some maintaining that it was coming from the sand, while others thought that it originated behind the casing. The next 10 days or so should determine whether or not the Cromwell horizon in this region carries sufficient oil to make drilling profitable.

Searight Extension

In the Searight Pool, which has long been the quietest part of the Greater Seminole region, there was a slight extension of the Hunton lime area last week when the Magnolia Petroleum Co.'s No. 1 Varnum, SE cor. SW SE Section 32-10-6, had the Hunton at 4,110-4,220 feet and made 65 bbls. of oil daily from this formation. This is a good thick section of Hunton for this region, and while the well establishes the Hunton production in this location, the 65 bbls. of oil per day will hardly excite much interest. The well is being deepened to the Wilcox formation.

The East Little River Field continues as a disappointment. The field was opened by the Mid-Continent Petroleum Corp.'s No. 1 Smith in Section 5-7-7. The wells which have been drilled since the discovery well have been either dry holes or light wells which have added little interest to the region. About the best well to be completed in this spot is the Marland Oil Co.'s No. 1 Harris, SE cor. SW Section 4-7-7, which looks good for about 500 bbls. daily. This well is now in the Wilcox sand, found at 4,501-04 feet, and is being drilled in. It is 1 mile east of the discovery well of the territory, and may be the cause of a small pool being developed.

The Mission area has registered no completions, and there are several wells in the pool which have set the 8-inch casing and are waiting for the cement to set before drilling down to the sand. Under the terms of the Mission operators' agreement, these wells will have February 1, 1929, as their official completion date. The matter of starting the second group of wells in the Mission area is still being threshed out by the operators with the assistance of the umpire and the Seminole Advisory Committee. No final decision has been reached, but it is significant that no new wells have been started.

The Oklahoma City Field is still interesting, and the Indian Territory Illuminating Oil Co.'s No. 1 fee, C SW SW Section 24-11-3w, is increasing its production with no deeper drilling. The well is now making 5,800 bbls. of oil daily from a total depth of 6,498 feet. The owners have experienced great trouble trying to drill the well deeper. It has been agreed by the majority of geologists that the well is producing from the Hunton lime. A meeting of operators interested in this region held last week resulted in no agreements being reached regarding the measure of developments in the region. The majority of owners were in favor of drilling only one well to each 40 acres of lease, but one company insisted on spacing its wells one to each 10 acres, or four to the 40-acre tract.

There was one interesting development in the Maud Wilcox area; that was when the owners of acreage close to the Empire Gas & Fuel Co.'s No. 1 Cluck, SW cor. NE, Section 11-8-5, agreed upon a limited drilling program. The Empire well was completed several weeks ago, and is now making about 400 bbls. daily on the pump. Whether the decline of the well assisted slowing up the drill or not is problematical, but at any rate, the owners have agreed to start no new wells and the Empire company has agreed to limit the output of the Cluck well to 50 bbls. per day on the pump. By this action, the drilling of 15 or 20 wells has been avoided.

Pipe Line Situation

The pipe line situation at Seminole shows slight change. The daily average pipe line runs out of the field for the week ending Saturday, January 5, follow-

	Bbls.
Barnsdall	2,3[illegible]
Champlin	5,8[illegible]
Continental	2,1[illegible]
Consolidated	[illegible]
Mid-Continent Pet. Corp.	9,2[illegible]
Empire	12,9[illegible]
Gulf	25,3[illegible]
Magnolia	22,3[illegible]
Oklahoma	39,6[illegible]
Prairie Pipe	59,1[illegible]
Pure	6,6[illegible]
Shaffer	7,8[illegible]
Shell	12,1[illegible]
Sinclair	24,6[illegible]
Texas	18,1[illegible]
Tidal	12,1[illegible]
White Oak	2,3[illegible]
Total	263,3[illegible]

The daily average tank car shipments out of the field for the same period follow:

	Bbls.
Amerada	3,[illegible]
Carter	4,[illegible]
Pure	6,[illegible]
Total	14,[illegible]

Caddo County

Magnolia Petroleum Co. is erecting the rig for No. 1 McKenna, NE cor. NW SW, Section 11-5-9w. Caddo Oil Co.'s No. 2 McKenna, SE cor. SW SW, Section 4-5-9w, is rigging up. Abernathy & Ashton's No. 1 Shanklin, C NW, Section 15-12-11w, has been abandoned at 4,60[illegible] feet.

Carter County

Magnolia Petroleum Co. is building the rig for No. 1 Winters, SW cor. NE SE, Section 19-1s-3w. Max Westheimer's No. 2 Dixon, NW cor. SW, Section 18-1s-3w, has been completed for 5 bbls. at 3,4[illegible] feet. Magnolia Petroleum Co.'s No. 1 E. Cox, SW cor. SE NW, Section 33-1s-3w, made a 50-bbl. well in sands at 3,08[illegible]-3,630 feet.

Comanche County

Pelwin Oil Co.'s No. 1 Simpson, C SE SE, Section 33-1-9w, is dry and abandoned at 2,510 feet.

Cotton County

Cullum & Jenkins made location for No. 4 Smith, SE cor. SW SE, Section 34-1s-10w. Scott & Arington's No. 1 Urich, SW cor. NE, Section 34-1s-10w, is rigging up. Pierce & Brown made location for No. 1 Heitzler, SE cor. NW, Section 31-2s-12w.

Creek County

Magnolia Petroleum Co. made location for No. 34 Coker, SW cor. NW NW, Section 16-18-7. Billingslea and others staked location for No. 1 Stidham, SE cor. SW SE, Section 21-17-8. Tidal Oil Co.'s No. 2 Parks, SE cor. NW NE, Section 21-16-8, is making 20,000,000 feet of gas from sand at 2,828-45 feet but may be mudded off.

Magnolia Petroleum Co.'s No. 33 Coker, CNL S half S half NW, Section 16-18-7, is pumping 30 bbls. from sand at 2,533-61 feet. No. 12 Vidaway, NE cor. NW, Section 17-18-7, was shot with 10 quarts and made 60 bbls. from sand at 2,490-2,502 feet. Pine & Smith's No. 1-A Tiger, SW cor. SE, Section 17-17-7, has been completed for 50 bbls. in sand at 2,710-71 feet. J. W. Henry and others' No. 1 Talamase, C NW SW, Section 7-15-7, is dry and abandoned at 3,987 feet.

Garvin County

Magnolia Petroleum Co.'s No. 1 Derdeyn, NE cor. SE SE, Section 18-1-3w, is a dry hole at 3,000 feet.

Jackson County

Stanley McGregor's No. 1 Mock, SW cor. NW SW, Section 33-1s-20w, has been abandoned at 2,425 feet.

Grady County

Little Nick Oil Co.'s No. 1 Farwell Smith, SW cor. NW, Section 24-5-8w, Chickasha gas field, is rigging up to deepen from 2,267 feet. Clark & Cowden made location for No. 3 Freed, C SW

WILDCAT OPERATIONS IN OKLAHOMA

NORTHERN OKLAHOMA

LATTIMER COUNTY

Company, farm and location—	Remarks:
Limestone Oil & Gas Co.'s No. 1 McMurray, SW cor. SW Sec. 15-5-18	1,000,000 ft. gas 1,695-1,705 ft.

GRANT COUNTY

Cowden and others' No. 2 Vollmer, CEL NE SW Sec. 22-25-4w	Shut down 5,640 ft.
Lario-Lathrop's No. 1 Cornell, NW cor. NW Sec. 24-28-3w	Drlg. 715 ft.

HARPER COUNTY

Hoffer Oil Co.'s No. 1 Cooper, NW cor. SE SE Sec. 12-26-22w	Shut down 4,130 ft.

KAY COUNTY

Geo. L. Miller and others' No. 1 Home, NW cor. SE Sec. 11-24-3	Dry and abandoned at 4,031 ft.
Lario Oil Co.'s No. 1 McKay, NW NE Sec. 14-29-1	Drlg. 3,790 ft.
Wentz Oil Corp.'s No. 1-A Ward, C NW SE SW Sec. 32-27-1e	Rig.

WOODWARD COUNTY

Otstot Development Co.'s No. 1 Simmons, SE cor. SE Sec. 32-24-17w	Dry and abandoned 1,490 ft.
Sharon Oil Co.'s No. 1 Elmore, SW cor. SW Sec. 25-21-21w	Rig blown down, 3,025 ft.
Billy's Oil Co.'s No. 1 Watt, C SE Sec. 9-23-20w	Drlg. 900 ft.
Burgoyne Brothers' No. 1 Merkins, SW cor. SE NE Sec. 15-21-19w	Shut down 1,910 ft.
Farrond and others' No. 1 Johnson, SW cor. SW Sec. 1-23-17w	Underreaming 1,560 ft.

GARFIELD COUNTY

E. L. Love and others' No. 1 White, SE cor. NW Sec. 9-24-6w	Shut down 4,755 ft.
Marland and Barnsdall's No. 1 Looman, NE SE Sec. 9-20-4w	Dry and abandoned 5,735 ft.
Marland Oil Co.'s No. 1 Miller, SW cor. SW Sec. 12-20-4w	Dry and abandoned 4,575 ft.

NOBLE COUNTY

Alco Royalty Co.'s No. 1 Waltermire, SE cor. NW Sec. 32-21-1w	Drlg. 2,165 ft.
Marland Oil Co.'s No. 1 Kidd, NW cor. SW Sec. 32-20-1w	Shut down at 5,290 ft.; plugging back to show oil 1,836 ft.

KINGFISHER COUNTY

McKinney & Crawford's No. 1 Sturgeon, NE cor. SW Sec. 27-16-6w	Underreaming 4,862 ft.

LOGAN COUNTY

Haley & Smith's No. 1 Guier, SE cor. SW Sec. 33-18-3w	Shut down 3,970 ft.
J. L. Donahoe's No. 2 fee, SW cor. NW SE Sec. 21-18-2w	Shut down 6,022 ft.

BLAINE COUNTY

Lowen and others' No. 1 Unknown, NW cor. SW NW Sec. 27-16-11w	Spudded and shut down; renewing leases.
W. J. Donnelly, trustee's No. 1 Dickens, NE cor. SE Sec. 26-15-12w	Drlg. 4,370 ft.
Ragland and others' No. 1 Unknown, C NW SW Sec. 13-19-10w	Rig.

LINCOLN COUNTY

Phillips Pet. Co.'s No. 1 Stephens, SE cor. NW Sec. 29-12-3	Rig.
Morgan & Flynn's No. 1 Finlay, SW cor. SW Sec. 19-16-6	Location.

McLAIN COUNTY

Empire Oil & Ref. Co.'s No. 1 Bonner, SE cor. NW NW Sec. 29-5-3	Rigging standard tools 4,160 ft.

MUSKOGEE COUNTY

Elk Drilling Co.'s No. 1 Jones, SW cor. SW Sec. 34-13-17	Shut down 400 ft.
L. T. Haney's No. 1 Mitchell, SE cor. NW SE Sec. 33-13-18	Shut down 2,290 ft.

(Continued on Page 104)

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SW. Section 23-5-7w. Oklahoma Gas Utilities Corp.'s No. 1 Dryden, NE cor. Section 3-4-8w, is drilling at 50 feet.

Kay County

Nehr, Wilson and others' No. 1 Boesch, SE cor. NW SE, Section 8-27-1, is drilling at 426 feet, going for shallow gas. Wilson & Wright's No. 1 Schmidt, NE cor. SE, Section 15-27-1, is drilling at 30 feet. Wilson and others' No. 1 Gilbert, CEL NW, Section 24-27-1, is drilling at 525 feet. C. A. Leonard and others' No. 1 Smith, SW cor. NW NE, Section 28-27-1, is a spud rigging up to drill for shallow gas. Marland Production Co.'s No. 3 North No. 2, NW cor. SW SW, Section 6-26-1w, is plugging back from 3,644 feet to shoot the Layton sand at 2,975-85 feet.

Lario Oil & Gas Co.'s No. 1 Stalnaker, NW cor. NE, Section 14-29-1, is dry and abandoned at 3,889 feet. Wilson & Wright's No. 2 Myer, SE cor. NE NW, Section 14-27-1, is a dry hole at 708 feet. C. A. Leonard and H. A. G. Oil Co.'s No. 3 Binney, CWL SW, Section 21-27-1, was completed for 200,000 feet of gas at 766 feet after plugging back from 856 feet. Marland Production Co.'s No. 3 Hall, C SW NE, Section 18-25-2, made 35 bbls. from chat at 3,826-95 feet.

Kiowa County

H. M. P. Oil Co.'s No. 1 Moss, SW cor. NE, Section 15-6-17w, has been abandoned at 835 feet. Alexander and others' No. 1 Fuqua, SW cor. NE, Section 18-6-16w, Gotebo Field, is pumping 67 bbls. from sandy lime at 428-40 feet. Thomas Medlin and others' No. 1 Prough, NE cor. SW, Section 18-6-16w, made a 16-bbl. pumper in sand at 375-87 feet.

Lincoln County

Texas Pacific Coal & Oil Co. has the rig up for No. 2 Long, NW cor. SE, Section 5-16-5. Indian Territory Illuminating Oil Co. has built the rig for No. 1 Crane, NE cor. SW SW, Section 31-15-5.

Logan County

Shell Petroleum Corp. is erecting the rig for No. 4 Rouse "B," SW cor. NE NE, Section 19-19-4w, Roxana Pool. The rig for No. 3 Shaffer, NW cor. SE NE, Section 19-19-4w, is also under construction.

Shell Petroleum Corp.'s No. 4 Sebranek, SW cor. SE NE, Section 30-19-4w, was completed for 979 bbls. in sand at 6,000-86 feet. No. 4 McCully, SE cor. NW SE, Section 30-19-4w, made 6,008 bbls. from Wilcox sand at 5,970-79 feet. T. B. Slick's No. 1 Terhune, SE cor. NW, Section 17-18-4w, Crescent Field, is dry and abandoned at 4,190 feet. Tibbets & Bond's No. 1 Donahoe, SW cor. NW SE, Section 21-18-2w, is dry and abandoned at 6,022 feet.

Osage County

Peters Petroleum Co. and Producers & Refiners Corp. is moving in a machine for No. 1, NE cor. Section 27-27-11. Galt Brown Oil Co. is moving in a machine for No. 3, NE cor. NW NW, Section 7-24-8. Location has been made for No. 4, CEL W half E half NW, Section 7-24-8. A. G. Oliphant's No. 1, NW cor. SW SW SW, Section 1-23-9, is rigging up. Pioneer Petroleum Corp.'s rig is up for No. 8-B, SW cor. NE SW, Section 5-20-11.

Skelton Moore's No. 6, NE cor. SW SW, Section 33-26-12, was completed for 5 bbls. in Peru sand at 1,016-68 feet. Silurian Oil Co.'s No. 5, SE cor. NW SE, Section 12-23-11, made 8 bbls. in sand at 1,480-1,580 feet. Clint Moore estate's No. 21, NE cor. SW SW SW, Section 9-21-9, made 20 bbls. from sand at 295-313 feet. A. G. Oliphant's No. 1, NW cor. SW SE, Section 9-21-9, is dry and abandoned at 500 feet. No. 6, NE cor. NW NW NW, Section 16-21-9, is a dry hole at 249 feet. Clint Moore estate's No. 7, NE cor. NW NW, Section 16-21-9, has been abandoned at 275 feet. Oklahoma Natural Gas Corp.'s No. 1,655, SW cor. Section 27-21-11, is dry and abandoned at 1,836 feet in Burgess sand.

Pawnee County

Empire Oil & Refining Co.'s No. 1 Tucker, SW cor. NE SW, Section 10-22-3, is dry and abandoned at 4,302 feet.

Payne County

Fern Oil & Gas Co.'s No. 1 Haymond, and abandoned at 3,735 feet. Magnolia NW cor. SW NW, Section 15-19-5, is dry Petroleum Co.'s No. 3 Green, NE cor. SE NW, Section 20-19-6, has been abandoned at 3,662 feet. Shaffer Oil & Refining Co. has the rig on the ground for No. 1 Myatt, SW cor. SE SW, Section 25-19-4.

Stephens County

Ven-Mex-Transcontinental Oil Co. has the rig up for No. 4 Bush, NE cor. NW NE NW, Section 3-2s-8w. Shaner and others' No. 2 Malechi, SE cor. SW NE, Section 31-1-8w, made 1,500,000 feet of gas from sand at 1,793-1,815 feet. Pace and others' No. 3 Bush, SW cor. NE NE NW, Section 3-2s-8w, is making 140 bbls. from sand at 1,642-53 feet.

LeFlore County

LeFlore County Gas & Electric Co.'s No. 1 Cutler, NW cor. NE SE, Section 17-6-21, is dry and abandoned at 2,673 feet.

Muskogee County

Bryan & Emery's No. 1 Friday, SE cor. SW, Section 5-15-15, is a machine rigging up. Grubbs & Young moved a machine to the location for No. 5 Friday, SW cor. NW, Section 8-15-15. J. L. Nourse and others' No. 1 Ware, NW cor. SW, Section 8-15-15, is rigging up.

Lockwood and others' No. 1 Lewis, SE cor. Section 31-14-16, is dry and abandoned at 1,860 feet. W. J. Metzger and others' No. 1 Taylor, CEL NE SE, Section 14-14-18 was completed for 1,600,000 feet of gas in sand at 892-907 feet.

Okmulgee County

J. N. Buzzard and others' No. 1 Pigeon, NE cor. NW SE, Section 30-15-13, is a rig on the ground. F. Hyer's No. 1 Howard, NE cor. SE SE, Section 17-15-14, is drilling deeper at 931 feet. Star Development Co. has a machine at the location of No. 6 Scott, SW cor. NW SE NE, Section 15-13-14. Aiken Oil Co. and others' No. 4 S. Fox, NE cor. SE NW, Section 22-13-14, was deepened to the Misner sand and made 762 bbls. from 2,290-91 feet. Papoose Oil Co.'s No. 20 Osborn, NW cor. SE SE, Section 21-15-14, is dry and abandoned at 2,595 feet.

Pittsburg County

B. C. Aylor's No. 2 Martin, NE cor. SW, Section 6-6-14, is spudding. No. 1 Reed, NW cor. SW NW, Section 7-6-14, has been abandoned at 1,103 feet.

Pontotoc County

W. R. Ramsey is building the rig for No. 6 Millner, SW cor. SE SE, Section 18-5-8, Allen Pool. No. 3 Whitney, NE cor. SW Section 19-5-8, swabbed 450 bbls. from Cromwell sand at 2,558-2,633 feet.

Pottawatomie County

Superior Oil Co. has the cellar dug for No. 2 Cloude, NW cor. SW SW, Section 13-7-4, St. Louis Pool. Interocean Oil Co.'s No. 3 McGee, SE cor. NE SE Section 23-7-4, is rigging up to drill from 4,158 feet in Simpson sand to Wilcox. Independent Oil & Gas Co. is erecting the rig for No. 2 Carson, NE cor. NW NW, Section 23-7-4. Sinclair Oil & Gas Co.'s No. 5 Blandin, SW cor. NW SW, Section 24-7-4, is rigging up to deepen from Simpson sand to the Wilcox sand. No. 1 Bruno, CNL NE, Section 26-7-4, is drilling at 4,322 feet still in Simpson sand and going to the Wilcox sand.

No. 1 Brandenburg, SE cor. SW SW, Section 7-7-5, is a location. Amerada Petroleum Corp. is building the rig for No. 4 Hallum, SE cor. NE SE, Section 1-8-4. The Texas Company is erecting the rig for No. 5 Calvin, SW cor. SE, Section 7-8-5, Mission Pool. Amerada Petroleum Corp. and Barnsdall Oil Co.'s No. 2 Wallace, NW cor. SW SW, Section 17-8-5, is a cellar. Laurel Oil & Gas Co. is building the rig for No. 2 Billington, NE cor. NW, Section 18-8-5. The rig is being moved in for No. 3 Billington, SW cor. NE NW, Section 18-8-5.

T. B. Slick and The Maud Oil & Gas Co. made location for No. 1 Nesbit, SE cor. NE NW, Section 18-7-5, Maud Pool. The rig is on the ground for No. 2 Davis, NW cor. SW NE, Section 18-7-5. Sinclair Oil & Gas Co. made location for No. 2 Nesbit, SE cor. NW, Section 18-7-5. No. 3 Nesbit, NW cor. NE NW, Section 18-7-5, is also a location. Magnolia Petroleum Co. is building the rig for No. 2 Brandenburg, NE cor. NW NW, Section 18-7-5. Pure Oil Co. made location for No. 5 Lindley, SW cor. NW SE, Section 18-8-5. Location was also made for

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NEW WELL IN WRIGHT AREA, KANSAS; OFFSET BY SALT WATER IN ANOTHE

By J. L. Dwyer
Staff Correspondent, Kansas Fields

The discovery of another well in the Wright area of Sedgwick County, Kansas, was offset by the appearance of salt water and b.s. in the Marland Oil Co.'s No. 1 Goodrich, the farthest northeast well of the region.

The new well in Sedgwick is the Mary Jane Oil Co.'s No. 1 Fitch which is situated on a small tract of acreage and the well is located approximately NW cor. SE SW Section 6-26-1e. This well scratched the pay at 3,380 feet, and the well flowed 178 bbls. the first four hours.

The Mary Jane well has an important bearing upon the Sedgwick region which is still the hottest part of the State in field development. The well is about 1 mile north and slightly east of the discovery well in Section 12-26-1w, and it is located directly upon a line running from the discovery well to the Marland Oil Co.'s No. 1 Goodrich in Section 16-25-1e. The position of the Mary Jane well gives added thought to the theory that the territory between the Gypsy-Marland and Bu-Vi-Bar group of wells around Section 12-26-1w and the Marland Oil Co.'s Goodrich well in Section 16-25-1e may ultimately be connected up, or at least may be the scene of several pools.

The region around the Mary Jane well contains several small tracts of leasehold which have been the cause of some argument regarding drilling activities. It now seems probable that the owners of these small tracts have agreed to limit drilling and to avoid crowding lease lines. The latest advices from the field indicate that the operators in this territory will agree to space their well locations 275 feet back from the property lines. If this is actually done, much trouble incident to the drilling up of small leases will be avoided.

Town Lot Play

On the edge of the town of Valley Center in Sedgwick County, the well T. B. Slick, the Aladdin Oil Co. a others has evidently started a town play. This well is No. 1 Smyser, NE SW SE Section 36-25-1w, and it is ducing from the regular Wright pay. owners are having some trouble with casing and this has prevented mak any thorough tests of the well. The performance it has recorded was when produced 510 bbls. by swabbing and ing in 18 hours.

The appearance of salt water in Marland Oil Co.'s Goodrich well in tion 16-25-1e has caused the north of the Sedgwick play to look less prom ing. This well had been producing arou 2,200 bbls. of oil daily, and last began showing salt water and b.s. most water the well made was 140 one day when it also produced 2,110 of good oil.

Marion County

In the Marion County district the Petroleum Corp. has just completed second dry hole which offsets Courte B. Davis' discovery well. The latest ture is No. 1 Funk, NW cor. SW Sect 7-19-3, which had the chat 2,435-65 with 500,000 feet of gas and a showing of oil before a hole full of was struck. The failures have natural discouraged additional development this vicinity.

The production of the Sedgwick Coun wells on Monday morning, January follows:

Gypsy-Marland-Bu-Vi-Bar's—
No. 1 Wright 1,1
No. 1 Lyons 1,1
No. 2 Lyons 1,1
No. 1 Lantz 1,1

The only interesting news from weste Kansas was that the Phillips Petroleu Co. drilled its No. 1 Schutts deeper wit a very small increase in output. This wel

(Continued on Page 115)

KANSAS WILDCATS

Company, farm and location—	Remarks:
BARBER COUNTY	
Barbara Oil Co.'s No. 1 Blunk, C NE NW Sec. 20-34-13w	2,000,000 ft. gas 4,755 ft.; fishing tools.
Rolland et al's No. 1 Pickens, NE cor. NW NE Sec. 27-30-14w	Shut down 4,223 ft.
BARTON COUNTY	
Everett & Wiley's No. 1 Ward, NW cor. SW Sec. 12-20-13w	Shut down 3,948 ft.
Mid-West Exploration Co.'s No. 1 Karst, SW cor. SW Sec. 11-16-15w	Drlg. 2,900 ft.
BUTLER COUNTY	
O. H. Fleming et al's No. 1 Brainard, NE cor. NW Sec. 22-24-3	Drlg. 3,145 ft.
LaRobb et al's No. 1 Bronsenger, NE cor. SW Sec. 24-27-3	Rig.
Swartz et al's No. 2 Randall, NW cor. NE NW Sec. 22 24-4	Shut down 2,540 ft.
CHASE COUNTY	
Griener & Fowler's No. 1 Carson, NE cor. NE Sec. 9-21-7	Shut down 3,162 ft.
COWLEY COUNTY	
Jones & Hall's No. 1 Shapland, NE cor. NW SE Sec. 20-30-6	Drlg. 3,054 ft.
Roth & Faurot's No. 1 Ridding, SE cor. NW Sec. 31-32-6	Drlg. 2,500 ft.
Shell Pet. Corp.'s No. 1 Galley, NE cor. NW SW Sec. 18-35-3	Drlg. 2,190 ft.
Pyle & Sutter's No. 1 Lindstrom, SW cor. NE Sec. 9-35-4	Drlg. 1,750 ft.
Empire-Marland-Twin States' No. 1 Feaster, NW cor. NE Sec. 36-32-5	Drlg. 3,245 ft.
E. B. Shawver's No. 1 Cook, NE cor. NE Sec. 20-30-6	Drlg. 2,860 ft.
Crow & White's No. 1 Powers, C NW NE Sec. 9-32-5	Sand 714-734 ft., 1,000,000 ft. gas
J. B. Markey's No. 1 Tatum, SE cor. SW Sec. 11-31-6	Shut down 500 ft.
Jones & Hall's No. 1 Shapland, SE cor. NW SE Sec. 20-30-6	Shut down 3,396 ft.
Wakefield & Osborne's No. 1 Osborne, NW cor. NE Sec. 18-30-5	Rig.
ELLIS COUNTY	
Rush Oil Co.'s No. 1 Gatewood, NW cor. NW Sec. 4-15-20w	Shut down 1,100 ft.
Transcontinental Oil Co.'s No. 1 Boetcher, NW cor. SE SW Sec. 21-13-19w	Drlg. 3,758 ft.
Finney & Weiner's No. 1 Freeman, SE cor. SW Sec. 24-15-20w	Spudded and shut down.
Labette Oil Co.'s No. 1 Urban, NE cor. NW NW Sec. 15-16-19w	Drlg. 3,264 ft.
Atlantic Oil Prod. Co.-D. B. Mason's No. 1 Gorham estate, C SE SE Sec. 35-15-16w	Shut down 2,150 ft.
Derby Oil Co.-Empire Oil & Ref. Co.'s No. 1 Krause, NW cor. SW SW Sec. 17-14-19w	Show of oil 3,829 ft.
Phillips Pet. Co.'s No. 1 Brull, C NW Sec. 34-14-17w	Drlg. 705 ft.
Moncrief et al's No. 1 Johnson, SW cor. NE Sec. 9-13-19w	Rig.
John Brown's No. 1 Gestner, SE cor. SW NE Sec. 13-13-18w	Drlg. 380 ft.
Empire Oil & Ref. Co.'s No. 1 Wann, NE cor. NE Sec. 31-12-19w	Show of oil 3,515 ft.
Mid-West Exploration Co.'s No. 36 Furthmer, SE cor. SE Sec. 25-12-16w	Drlg. 3,105 ft.
Phillips Pet. Co.'s No. 1 Shultz, C NE Sec. 5-12-17w	Lime 3,573-75; swab'd 280 bbls. oil.
Mid-West Exp. Co.'s No. 1 Austin, NE cor. NE Sec. 36-12-16w	Oswald lime 3,105 ft.; 70 bbls. oil daily.
Marland Oil Co.'s No. 1 Vine, SW cor. SW SE Sec. 27-11-19w	Drlg 3,558 ft.
Davis & Hazlett's No. 1 Wieland, NE cor. NE Sec. 1-13-16w	Drlg. 500 ft.

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Joe Bruner Pool Above 10,000 Barrels

Gulf Production Co. Has Nice Production in Section Which Is Quite Active. Deepening Helps Yost Pool Producer

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., Jan. 7.—The Joe Bruner or Salt Flats Field at Luling in Caldwell County the past week went into the major class of pools by producing over 10,000 bbls. of oil a day. It was aided in reaching that mark very materially by eight wells of the Gulf Production Co., all completed recently, which had a combined production of about 4,500 bbls. daily. Some good wells by other companies also boosted the production to the new figure and several other wells nearing completion will probably be brought in within a few days further increasing the output. There are about 80 rigs running in this new pool and ample undeveloped acreage to permit of bringing the production up to an important figure.

Humble Oil & Refining Co.'s No. 1 T. B. Johnson, reported last week as a 100-bbl. well and extending the field about 2 miles indicates that there is ample undrilled territory to permit of material increase in production in the field. A very considerable part of the intervening territory between the Humble well and nearest production in the field is owned by the Humble Oil & Refining Co. and the Luling Oil & Gas Co. with the Humble doing the development. There is considerable untested territory northeast of the acreage held by the Humble Oil & Refining Co. and the Luling Oil & Gas Co.

The field went to 10,000 bbls. a day on January 1 and the next day gauged 9,750, but on Friday was up over 12,000 bbls. and there are enough wells due for completion and in locations that are practically sure to be producing to keep the figure above 10,000 bbls. There were a total of 11 oil wells and 1 gas well completed in the field in the past week. More than a score of tests are on or near the sand and due for early completion and several others have reached the top of the chalk.

Yost Field

In Bastrop County, the feature of the Yost Field was the deepening of the Cranfill & Reynolds' No. 3 Yost, which was primarily brought in as a small well but when deepened flowed at the rate of 2,500 bbls. Production in this field has increased to a point where the Magnolia is pulling in twin pumps to increase the capacity of its lines and will also lay a new 6-inch line. The field is producing around 2,000 bbls a day.

Refugio Field

Elsewhere in Southwest Texas it was not a very active week so far as completions were concerned. Holidays and heavy rains contributed to prevent field work and many a rig was idle for several days last week due to being rained out. In the Refugio Field No. 7 Lambert off to the northwest of the field failed to get any sand at around 3,700 feet that would correspond to the sand producing both oil and gas and which is the deepest producing sand in the field at this time. It is believed there is a fault line running through the field. The well is now down 4,210 feet and drilling. Saxet's No. 1 Mitchell recently abandoned and still farther to the northwest also failed to find that sand. In the southeast part of the field Mission Drilling Co. has spudded in and set surface casing in No. 1 Nellie Cummins which will be watched with interest since the deeper sands have never been tested in that direction. The field had no completions the past week.

Laredo District

Heavy rains also interfered in the Laredo district. Sun Oil Co. completed its No. A-10 Yeager in sand at 2,147-64 feet for 200 bbls. of oil and its No. A-11 Yeager in sand at 2,147-63 feet swabbing 250 bbls. of oil, both at the south end of the Albercas Pool in the southeastern part of Webb County and Alworth-Stevens-Hild Co. completed No. 15 Garza in the Alworth Pool for 25 bbls. with sand at 1,026-30 feet. These were the only oil wells completed. Houston Gulf Gas Co. brought in a 35,000,000-foot gas well with 700 pounds rock pressure when it completed its No. 1 Benavides in Webb County in Survey 693, a little northeast of the Magnolia-Cole oil pool. This well is a mile east and a mile north of the nearest production in the Magnolia-Cole Pool and it should be kept in mind that John J. O'Hern completed a gas well just 2 miles due north of production in the field, his being a big gas well also.

Sand depth in the Houston Gulf Gas Co.'s No. 1 Benavides is 2,298-2,308 feet which is about the same as the depth to the oil sand in the Magnolia-Cole Pool. It was indicated in The Oil and Gas Journal last week that the Houston Gulf Gas Co. well might open up something new and it has. There is possibility of considerable development in that territory both for gas and oil.

Carolina-Texas Field

In the Carolina-Texas Field in Webb County, Murchison & Fain's No. 1 Webster drilled at the time the Associated Oil Co. and Usher Carson found oil production in No. D-2-A Webster, has lately started making oil. It was drilled to about the same depth as No. D-2-A Webster at about 2,600 feet and came in a gas well. It has been used for fuel for drilling purposes. Usher Carson's No. D-4 Webster, an east offset has been making some oil ever since it was drilled and he recently offset it on the south with the D-5 which came in making some oil at the same depth. The wells were not large but have encouraged the idea that there may be some oil production there. Two wells are now drilling in that part of the field on the theory that there is oil production to the southeast. The deepest is Foster-Barnsley's No. 1 Webster, about 660 feet due south of Murchison & Fain's well and drilling at 2,125 feet. W. R. Shankle, off to the southeast a quarter of a mile, is drilling at 1,600 feet in his No. 1 Webster.

Completions

Bastrop County

Cranfil & Reynolds' No. 5 Yost, A. Garcia Survey, 150 feet to southeast and southwest lines at 1,330 feet in serpentine topped at 1,230 feet, is swabbing 600 bbls of oil.

Their No. 3 A. Yost, A Gracia Survey, 300 feet southwest of No. 1 at 1,418 feet swabbed 75 bbls and deepened to 1,430 feet flowed at rate of 2,500 bbls. daily initial output.

Their No. 4 Yost, A. Garcia Survey, at 1,467 feet in serpentine topped at 1,369 feet, is a 75-bbl. well.

Caldwell County

Golden West Oil Co.'s No. 1 Malone, A. Floyd Survey, in the Bruner Field, at 1,100 feet is gas well estimated at 3,000,000 feet daily.

Abercombie Oil Co.'s No. 2 Lida Moses, A. Floyd Survey, at 2,724 feet, is making 150 bbls. about one-half water.

Sun Oil Co.'s No. 3 Malone, A. Floyd Survey, completed at 2,732 feet, made 150 bbls initial production by heads.

Cranfil & Reynolds' No. 3 S. Smith, A. Floyd Survey, completed at 2,687 feet, is making 500 bbls.

Lutex Oil, Inc.'s No. 3 Wilson, A. Floyd Survey, completed at 2,656 feet, is flowing 100 bbls. by heads. Its No. 6 Davis is making 150 bbls. daily.

Humble Oil & Refining Co.'s No. 1 T. B. Johnson, James Hinds Survey, at 2,686 feet, made 100 bbls.

Turman & Brown's No. 1 City of Luling, A. Floyd Survey, completed at 2,760 feet for 250 barrels, on beam.

Gulf Production Co.'s No. 1 J. J. Davis, A. Floyd Survey, at 2,737 feet, has been completed making 72 bbls. first six hours. Its No. 1 William Smith, A. Floyd Survey, completed at 2,720 feet, flowed 400 bbls; No. 2 William Smith, A. Floyd Survey, at 2,710 feet completed, flowed initially 600 bbls.; and No. 5 Connaly, A. Floyd Survey, completed at 2,720 feet, making at rate of 700 bbls.

Jim Hogg County

Alworth-Stevens-Hild's No. 15 M. Garza, Survey 39, Block 9, Alworth Field, at 1,030 feet, is making 25 bbls. oil and some water.

Nueces County

Houston Oil Co.'s No. 1 Anderson, Section 34, Agua Dulce Field, completed at 2,018 feet nice gas well, volume not gauged but estimated 50,000,000 feet daily.

Webb County

Sun Oil Co.'s No. A-10 Yeager-Strohman, Share 5, Albercas Field, completed at 2,164 feet, making 200 bbls. Its No. A-11 Yeager-Strohman, Share 5, at 2,163 feet, has been completed swabbing 250 bbls.

Houston Gulf Gas Co.'s No. 1 S. Benavides, Survey 693, northeast of Magnolia-Cole Field, at 2,308 feet has been completed as a 35,000,000-foot gas well with 700 pounds rock pressure.

Simms Gas Field—Duval

Simms Oil Co.'s No. 3 Dinn, Survey 62, located 660 feet to north and east lines and Simms tract, has been spudded in.

Humble-Reiter-Foster Pool

Humble Oil & Refining Co.-Reiter-Foster's No. 12 Kohler, Survey 403, located 1,485 feet to south line and 165 feet to east line, is ready to spud in; No. 13 Kohler, Survey 163, located 495 feet to east line and 165 feet to south line, is ready to spud in.

Driscoll Gas Field

Robert Driscoll's No. 13 Driscoll, Survey 448, located 2,100 feet to east line and 900 feet to south line, at 2,464-74 feet tested gas on drill stem test.

Schoolfield-O'Byrne Field

Magnolia Petroleum Co.'s No. B-3 Hahl, Survey 61, located 3,081 feet to east line and 150 feet to south line, is drilling at 1,250 feet. Sun Oil Co.'s No. 2 Norton, Survey 250, Block 19, located 450 feet to east line and 150 feet to south line, is drilling at 1,800 feet; No. 2 Henne-Winch, Survey 250, Block 20, located 150 feet to north and west lines, is skidding derrick over from No. 1. S. & O. Oil Co.'s No. 1 Hahl, Survey 250, Block 23, located 220 feet to north line and 420 feet to west line (location changed), is in sand at 2,316 feet; No. 2 Bowe, Survey 250, Block 21, located 220 feet to east line and 660 feet to south line, has derrick up. Onyx Oil Co.'s No. 3 Krauter, Survey 250, Block 20, located 450 feet to north line and 150 feet to

(Continued on Page 107)

SHOW IN AUSTIN CHALK IN WILDCAT IN GUADALUPE COUNTY INTERESTING

By B. D. Stevenson

SAN ANTONIO, Tex., Jan. 7.—Some more wildcat tests over Southwest Texas are showing oil. J. J. Christie's No. 1 Taylor Thomas, a few miles west and a little south of Staples in the north part of Guadalupe County, is showing some oil in the Austin formation at 1,053 feet and casing will be set at about 975 feet for a test. The top of the chalk was 907 feet. A few years ago J. G. Rentz invaded that part of Guadalupe County and drilled a well or two and got a showing of oil. He interested the Magnolia and it drilled some wells in the same area and got showings but no production. Those were the days before the Joe Bruner or Salt Flats Field at Luling in Caldwell County where the first Austin chalk well of any particular importance was brought in. The wells in north Guadalupe at Staples were not shot and the Austin chalk then in the minds of most people was a forlorn hope so far as oil production was concerned. Since then 200 bbls. of oil a day settled production of 37 gravity oil has been taken from wells in the field at Luling. A couple of years ago the showing of oil in J. J. Christie's No. 1 Thomas would have been given but little attention. Now it is considered a possibility and the showing is thought to be as good as some of the good Austin chalk producers in the Joe Bruner Field and the proposition is worth watching. It will be more than a week before it is finally tested.

Southern part of Bexar County also has another shallow test showing oil. Shallow oil exists across the whole southern part of the county and has been picked up in various places, and is producing all the way from Somerset on the southwest to Adkins on the northeast. W. M. Morgan is down about 610 feet in No. 1 Bridge about 3 miles due north of Elmendorff and about 5 miles east of the shallow production at Southton which is the nearest production.

A well that is being watched with interest is Rogers and Heap's No. 1 Forrest in the north part of Caldwell County near Mendosa which is down about 1,000 feet and is being drilled on the theory of a Serpentine plug. The nice production developed in the half dozen wells in the Yost Field in Bastrop County, a few miles northeast from this well causes added interest in this well.

The wildcat spots other than those mentioned above and the Reiser area in Webb County, the territory south of the Alworth Pool in Jim Hogg County, where R. V. Hill is about to find oil, and Starr County are several spots in the territory between the Balcones Fault zone and the coast territory from Refugio to Kingsville. This strip of counties includes the wildcatting by the Humble and Texas in Victoria County and the wildcatting in Fayette by the National Oil Co. and R. E. Phalon and some additional activity in Goliad and other counties. In Goliad County, Southern Crude's (W. G. French) No. 1 Pettus is in the Jackson at 3,215 feet. The contract depth was 3,000 feet but it is drilling deeper. At 3,114 feet it had a sand showing gas and salt water. It was in the formations from the Jackson on down that production was looked for.

Duval County

Magnolia Petroleum Co.'s No. A-2 Hahl, Survey 51, located 150 feet to south and east lines, is coring at 4,077 feet. O. Henry Oil Co.'s No. 1 Henry, Block 1,879 of Snodgrass Subdivision, 450 feet to southeast lines and 220 feet to northeast lines, is drilling at 430 feet.

Starr County

The Texas Company's No. 1 Ofelia Resendez, Porcion 69, Block 174, located

(Continued on Page 108)

Ohio Gets Good Well at Champagnolle

Eastern Extension of That Field Scene of 1,200-Bbl. Completion. Humble Has Producer in Nevada County, Ark.

By D. H. Bancroft
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Jan. 7.—Champagnolle's eastern extension, much kinder to Ohio Oil Co. than were its leases in Sections 10 and 11-17-14, in the old deep sand area, afforded that company a gusher almost paralleling its No. 3 Account 1 Nash in Section 6-17-13, when No. 2 Alphin in the NE cor. NW NW, Section 7-17-14 was completed as a 1,200-bbl. producer from 11 feet of sand, total depth 3,058 feet. It is located a quarter of a mile southwest of the Nash well, which gauged 1,500 bbls. from 3,020 feet a month ago. The new well was one of a trio of Champagnolle completions that added 1,540 bbls. to the pool's initial production. The other two were the Lion Oil Refining Co.'s No. 2 Nash in the NE cor. NE SW, Section 6-17-13, flowing 120 bbls. from 18 feet of broken sand, total depth 3,051 feet and H. L. Hunt's No. 3 Gregory, in the SW cor. SW SE, Section 10-17-14, flowing 211 bbls. through 2½-inch tubing from 3,259 feet. Humble Oil & Refining Co.'s No. 2-D Groves in Section 6-14-20, Nevada County, completed the list of producers pumping 25 bbls. from 2 feet of sand, total depth 1,140 feet. The remaining 7 of the 11 completions in proven areas of the division were all gassers, 2 in East Texas, which has been missing from completions records for two or three weeks.

Two more were deep holes in Cotton Valley, and one each in Shongaloo, Ouachita and Richland Parish districts.

Magnolia Petroleum Co.'s No. 2 Lula Fletcher, in the B. C. Jordan Survey of Panola County, gauged 47,556,000 feet of gas at 900 pounds with some water from the deep horizon at 2,560 feet. Ten days ago it blew in with an estimated 20,000,000 feet of gas and lots of water and was shut in, repair measures accomplishing a shut off of the greater part of the water. The Texas Company's No. A-7 T. C. Adams in the S. B. Lacy Survey, gauged 2,710,000 feet of gas at 525 pounds from 2 feet of sand, total depth 958 feet.

Trinity Sand Wells

Ohio Oil Co.'s No. 42 Bodcaw, in the C SW NW Section 27-21-10, gauged 937,000 feet of gas at 4,653 feet with R. W. Norton's No. 1 Massey, in the next "40" east and is the farthest south of the deep Trinity wells drilled in Cotton Valley since its No. 38 Bodcaw in Section 15-21-10 opened production in that horizon. Ordinarily a well of such size and at such depth would scarcely be regarded as much of a success, but the exceptionally high gasolnie recovery from Webster Trinity gas wells alters the case. Palmer Corp.'s No. 4 Gillman, in Section 28-21-10 was a considerably better performer with 22,000,000 feet of gas at 1,750 pounds, total depth 4,625 feet. Magnolia Petroleum Co.'s No. 1 H. M. Branton, in Section 5-22-9, Shongaloo district, gauged 5,500,000 feet of gas at 225 pounds, total depth 2,705 feet.

Proximity of a crater well does not seem to have materially effected the Richland Field in which it is located for Ouachita Natural Gas Co.'s No. 4 Perdue in Section 5-15-6, was completed at 2,440 feet gauging 49,000,000 feet and a previous well in the same area was of similar proportions, though the crater has been wasting gas for two months or more. The Ouachita Parish division of the Monroe gas field supplied West Virginia Oil & Gas Co.'s No. 6 fee, Section 6-18-4, making 3,000,000 feet of 950 pounds, total depth 2,203 feet.

Gulf Refining Co. has gone to the old El Dorado East Field for the first well it has drilled in Arkansas in some time and will make a deep test of No. 1 Woodley in Section 6-18-14, Union County. The well was completed by T. J. Woodley as No. 2 Townsend during the east side pools hey-dey, a salt water test at 3,143 feet. Gulf also will drill No. 2 Gaddy in the same field, NW cor. NE SE, Section 30-17-14, as a shallow test.

Champagnolle

In Champagnolle, Skelly Oil Co. is deepening No. 1 Gregory in Section 15-17-14, completed July 11, as a 50,000,000-foot gasser with a spray of oil at 3,051 feet. Lion Oil Refining Co. is making a 3,500-foot test, or deeper, of No. 5 Union Sawmill, Section 7-17-13, in the southeast corner of the eastern extension. Failing to get production at the usual depth, they tested again at 3,283 and 3,368 feet, getting salt water in each instance, and are drilling at 3,435 feet. Phillips Petroleum Co. also will deepen an oil well in Smackover, No. 20 Joyce in Section 33-15-15, Ouachita County, which they completed as a dry hole at 2,453 feet in October, 1925.

Production Decreases

Daily average runs from the several pools during the week totaling 116,595 bbls., a new low since 1925, were:

Louisiana	
Caddo, light	8,960
Caddo, heavy	2,560
Homer	4,045
Haynesville	5,540
DeSoto-Red River	4,070
Elm Grove	595
Bellevue	900
Cotton Valley, light	50
Cotton Valley, heavy	3,175
Urania	6,020
Pleasant Hill	495
Total	36,410
Arkansas	
El Dorado	4,950
Smackover, light	7,090
Smackover, heavy	51,930
Stephens	1,010
Nevada County	1,500
Lisbon	1,680
Champagnolle	11,865
Bradley	100
Total	80,185
Both states	116,595
Last week	117,070
Decrease	475

North Louisiana

Caddo Parish

Greenwood—Lorraine Syndicate made location 275 feet east and 200 feet south NW cor. S half fraction, Section 18-17-16, for No. 1-D Bryson.

Hosston—Bayou State Oil Co.'s No. 34 Hoss, Section 24-22-15, is waiting on standard rig to pump, total depth 1,048 feet; No. 6 Land is a derrick 450 feet east and 200 feet north of C, Section 22-22-15.

Mooringsport — Falcon Drilling Co.'s No. 3 Muslow, Section 29-20-15, is waiting on standard rig to pump from 8 feet of broken sand, total depth 2,312 feet.

Lewis—Snake Creek Oil Co. cemented 10-inch at 65 feet on No. 1 Levee Board, Section 9-21-16, and is drilling down.

Pine Island—Dixie Oil Co.'s No. 3-B Wells, Section 21-21-15, is drilling at 1,186 feet with 10-inch surface string cemented at 60 feet. Magnolia Petroleum Co. is bailing No. 18 Robertshaw, Section 24-21-15, for a test at 3,790 feet after a show of oil with salt water. D. Thomason is also bailing for a test on No. 7 Muslow in Section 31-21-15, total depth 1,650 feet.

Claiborne Parish

Haynesville — Smitherman & McDonald cemented 6⅝-inch casing on No. 1 Miller, Section 17-23-8, at 4,190 feet.

Homer—Oakes and others' No. 1 Richardson, on the fault in Section 19-21-7, is drilling at 1,000 feet.

LaSalle Parish

Urania—Ayers Brothers have temporarily abandoned No. 6 Tremont, Section 30-10-2e, after a test of 15 feet of broken sand, total depth 1,540 feet, failed to produce results. Hartzano Oil Co. made location and has derrick up for No. 3 Urania, 550 feet west and 150 feet north of the center of Section 7-10-2e.

Monroe District

Morehouse Parish—Amalgamated Carbon Co. has derrick up for No. 3 Fairly in Section 53-20-4. Natural Gas Products Co.'s No. 22 Crossett, Section 35-21-4, cemented 12-inch at 180 feet. Southern Carbon Co. set 184 feet of 12-inch surface pipe and is drilling at 400 feet on No. 51 fee, 594 feet south and 2,046 feet east NW cor. Section 15-20-4; No. 8 Tensas, Section 2-20-4, is drilling at 100 feet.

Ouachita Parish—G. E. Jordan plugged back 2,300 feet on No. 1 Wall, Section 12-18-13, total depth 3,347 feet, preparatory to testing at around 2,300 feet where he picked up 1,000,000 feet of gas. Magnolia Petroleum Co. has rig up to drill No. 2 Morrison, Section 2-19-4, and for No. 1 United States, in Section 18-19-5. Palmer Corp. has derrick up for No. 5 fee, 456 feet west and 1,980 feet south NE cor. Section 24-19-4. Pipes & Mack are rigging up No. 1 McGee in the NE NE, Section 10-18-4, just north of Monroe. United Carbon Co. cemented 12½-inch at 187 feet and is drilling at 400 feet on No. 3 fee, Section 6-19-5.

Richland Parish

Community Oil & Gas Co.'s No. 1 Boise, Section 33-16-6, is drilling at 1,500 feet. Magnolia Petroleum Co. set 10-inch at 910 feet on No. 1 D. R. Sartor, Section 21-16-6, and 8⅛-inch at 2,310 feet on No. 2 J. Sartor, Section 16-16-6.

Webster Parish

Cotton Valley—Cotton Valley Syndicate's No. 19 Hope, Section 24-21-10, is drilling in limestone at 3,686 feet. Magnolia Petroleum Co. is drilling chalk at 2,425 feet on No. 4 Ira Cox, Section 23-21-10, and lime at 3,361 feet on No. 1 McCook & Hibbler, in Section 22-21-10.

Sarepta and Shongaloo—Magnolia Petroleum Co. has rig up for No. 1 Denman, 330 feet south and east NW cor. Section 1-22-11; No. 1 Scroggins, Section 1-22-11, is waiting on standard rig to pump from 15 feet of sand at 3,709 feet, total depth. Northwest Louisiana Gas Co.'s No. 9 Pine Woods, Section 34-23-11, is drilling at 2,700 feet.

Arkansas

Johnson County

Arkansas Natural Gas Co.'s No. 1 McPherson, Section 10-10-24, is drilling at 500 feet and will set 12½-inch surface string.

Ouachita County

Smackover — Phillips Petroleum Co., drilling No. 7 Johnson in Section 34-15-15, cemented 6⅝-inch casing at 1,963 feet, and is arranging to deepen No. 20 Joyce, Section 33-15-15, abandoned as a dry hole at 2,453 feet, October 7, 1925.

(Continued on Page 61)

DRY HOLES FAIL TO HALT ACTIVITY IN SOUTHEASTERN ARKANSAS REGION

By D. H. Bancroft

SHREVEPORT, La., Jan. 7.—Notwithstanding all the dry holes that have been drilled in southeastern Arkansas during the last six months, machine surveys and leasing in that territory continue on a large scale. A half dozen major companies are making magnetometer and other geophysical surveys and are buying acreage, their activities being scattered through a half dozen counties. For instance Ohio Oil Co. has blocked 4,000 or so acres of Jerome Lumber Co. land in Townships 14, 15 and 16, Range 3, Chicot County, and optioned another 8,000 acres. Pure Oil Co. has taken scattered acreage in Calhoun, Bradley, Ashley, Chicot and Desha Counties on the strength of magnetometer survey results. Ohio Oil Co. is interested in territory farther north—in the rice belt prairie country of Arkansas between Little Rock and Stuttgardt and between Stuttgardt and the Mississippi River.

Four or five years ago several wells were drilled in that part of the State, and while they proved water holes, revealed structural conditions of a sort to make further prospecting interesting.

Joe Hurley's well in Calhoun County, 7 or 8 miles northeast of Champagnolle production, is arranging for a test of 10 feet of Nacatoch sand which is holding attention and McDonald Brothers' well about 6 miles west of Louann production in Smackover is arranging for a test of the same formation. In the latter case a drill stem test produced enough oil to suggest that a new pool is in the offing, interest in the outcome being heightened by the fact that whereas Louann is Smackover's light oil district, the crude obtained by McDonald Brothers is of much lower gravity.

Below Light Oil Horizon

Again the oil in the McDonald test came from around 2,800 feet, about 600 feet below the light oil horizon and at least 100 feet lower than Smackover's Narphlet heavy oil. Ohio's No. 1 Southern Lumber Co. in Section 19-16-9, Bradley County, a few miles northeast of Champagnolle, is drilling at 2,136 feet and it is understood that in the event of a failure here one, and possibly two, more wells will be drilled to further test out the magnetometer's indications.

During the two weeks' holiday period there has come a great change in the appearance of field reports. A month before Christmas wildcats were in the majority, but the last weekly report shows more wells in proven territory actually drilling than there are wildcats, and of the latter that are active there is little to report except that they are making hole.

Dixie Oil Co. reached contract depth on No. 1 Gilbert in Section 27-21-5, Claiborne Parish, and shut down at 4,517 feet for orders. It got a show around 4,205 feet, set a short string of 6⅝-inch which did not hold, set a full string and tested again at 4,326 feet and got salt water.

McDonald Brothers' No. 1 Wilson in Section 25-15-18, Ouachita County, Arkansas, seems about to repeat on second hole its experience on the first, which was junked. They had a foot or so of sand at 2,808 feet and got testing tool stuck in attempting a test and are fishing. In the first hole they got several fourbles of heavy oil on top of about 100 feet of water from 6 feet of sand, total depth 2,821 feet. D. Frazier, trustee, has made location in the NW cor. NW SE, Section 30-19-16, for No. 1 Laney, a deep test 6 miles south and west of production in the old El Dorado South Field.

Outsiders Show Interest

The manner in which R. L. Gay's No. 2 Bowman-Hicks in Section 14-7-14, Sabine Parish, has been holding up since

(Continued on Page 62)

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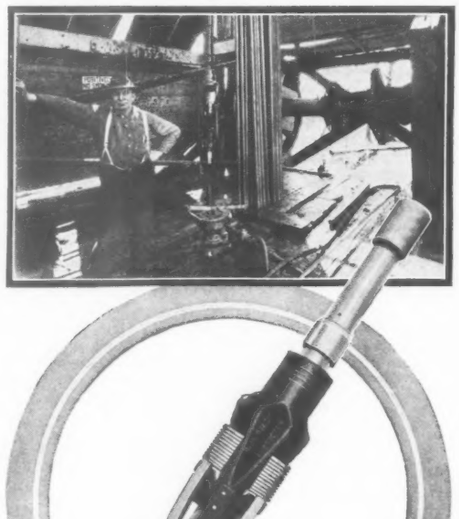

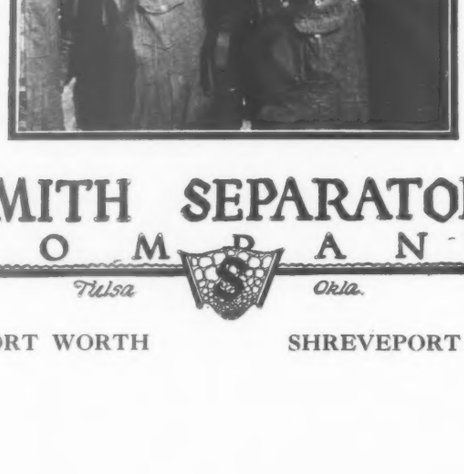

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HOUSTON FORT WORTH SHREVEPORT LOS ANGELES

New Deep Pay Found in Humble Field

South Texas Petroleum Co.'s No. 1 Morris, With Initial Flow of 5,280 Bbls. Daily, Likely to Renew Interest in This Area

By Neil Williams
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., Jan. 7.—Opening of a new deep producing sand in the old Humble Field, and extension of the recently discovered deep prolific pay on the southeast side of Barbers Hill, together with additions substantial extensions at DeWalt and at Raccoon Bend put new interest in Gulf Coast fields during the week following a month of comparative inactivity. In addition, the finding of an entirely new oil sand at Raccoon Bend and a rich appearing pay on the wildcat east side of Boling Dome, both of which will be tested early this week, offered prospects of further new production.

The new deep prolific pay on the south edge of the old Humble Field was found in South Texas Petroleum Co.'s No. 1 Morris, W. T. Charles Survey, which came in at a total depth of 5,347 feet flowing initially at the rate of 5,280 bbls. daily on a three-quarter-inch choke. The production was cut down to below 2,500 bbls. on a half-inch choke. The oil, however, being 42 gravity, is considered too high, although the deeper wells being brought in on the Coast have shown a tendency to higher gravities.

This well is the deepest ever drilled at Humble and the discovery of this pay, somewhat unexpected, may result in operators paying more attention to the possibilities of further new production there. Humble, although still claiming to have produced more oil than any other Coastal field despite the fact that Spindletop now has a bigger daily average and is rivaling Humble's total production, has been virtually deserted by the driller for over a year. It has not been deemed worthy of the trouble to scout it. The Texas Company and Sun Oil Co. have drilled a few deep tests around the north side and have worked over some old wells and a few small pumpers have been completed in the old shallow cap rock area, but with these exceptions and two deep wells drilled by the South Texas Petroleum Co. on the south edge there has been no work there.

New Well Is Old One Deepened

The new well is a former shallower producer deepened, originally being completed at a depth of 3,036 feet where it flowed initially at the rate of 700 bbls. daily. This production soon dwindled, the well was put on the pump for a time and then stopped altogether. No. 2 Morris then was drilled to another deeper sand, where it made a small producer and after this the No. 1 was started deeper, missing the No. 2 Morris sand but finding the 5,347-foot sand.

Although Humble is one of the oldest and most famous Coastal fields, little deep drilling has been done there, its big production being from the shallow cap rock and from sands around it at approximately 2,600 feet. The new producer is in the midst of a number of shallow wells.

At Barbers Hill, Humphreys Corp. brought in its No. 1-C Kirby, the first well completed in the drilling campaign which started following the completion last October of Bennett Petroleum Co.'s No. 1 Smith, which came in flowing at the rate of better than 4,000 bbls. daily which proved Barbers Hill's first consistent producer, although recently it sanded up, necessitating cleaning out. The Humphreys well is approximately 350 feet to the northwest of the Bennet well and from a sand at a total depth of 5,315 feet flowed initially at the rate of 2,000 bbls. daily of 27.5 corrected gravity oil. Bennett's well found the pay at 5,272 feet (bottom).

A third deep well in this area, which is on the southeast flank of the dome, was expected in over the week-end. This was Bennett Petroleum Co.'s No. 2 Kirby, 100 feet north and the offset to the company's No. 1 Smith. No. 2 Kirby found 9 feet of pay sand at a total depth of 5,411 feet. Still another well, Humphreys' No. 6-B Kirby is expected to reach the sand within a few days, passing up a shallower sand at 4,927-53 feet.

DeWalt Dome Production Extended

Production at the new DeWalt Dome of Fort Bend County was extended approximately 2,500 feet southeast of the discovery well with the completion of Humble Oil & Refining Co.'s No. 1 Dew flowing initially at the rate of 1,500 bbls. daily through a half-inch choke from sand at 3,591 feet. This well put the daily output of the field, not a year old, to above 6,000 bbls. with all the wells pinched in. Not only are the wells pinched in but the dome is being drilled conservatively providing only for necessary offsets.

Raccoon Bend, another new field for the Gulf Coast, added another producer in Humble Oil & Refining Co.-Valley Oil Corp.'s No. 1 Beal, flowing 300 bbls. daily from sand at a total depth of 3,358 feet. This well is 700 feet north and 300 feet east of the nearest well, the No. 1 Bracey. Of particular interest at Raccoon Bend was the discovery of an entirely new oil-showing sand in these operators' No. 2 Walton. This sand is at a total depth of 2,235 feet whereas oil production so far has been from sands at approximately 3,300 feet. A shallow sand around 1,000 feet has produced gas. A string of 9⅝-inch casing has been cemented at 2,195 feet in the No. 2 Walton preparatory to testing. Over a month ago No. 2 Urban blew out from a sand at 2,327 feet which was encountered unexpectedly but this made only dry gas.

In the new Gay Hill Field of Washington County, Sun Oil Co. completed its No. 1 Grote flowing 600 bbls. daily from sand at 1,386 feet. This was the discovery well, deepened from a sand at 1,154 feet, where first production was obtained, to a total depth of 1,495 feet and then plugged to the present level.

Five wells were completed in the new shallow sand area on the South Liberty Dome. These were Sun Oil Co.'s Nos. 19, 21, 22 and 23 Mitchell and Gulf Production Co.'s No. 1 Mars McLean. Sun's No. 25 Mitchell, 1,000 bbls. daily at 858 feet, was the largest well with the others ranging only up to 300 bbls. daily each. In the old South Liberty Field, Navarro Oil Co. deepened its No. 3 Harrison to 3,398 feet and put it on the pump for 90 bbls. daily.

Another in Rockland District

The Rockland district of Jasper County got another of its typical wells in Great Lakes Oil Co.'s No. 3 Boykin, flowing 250 bbls. of fluid with approximately 40 bbls. of heavy oil at 1,268 feet. This is the third such well, all making high percentages of salt water. The oil in each is extremely heavy.

Other completions during the week were: Gulf Production Co.'s No. 19 Scarborough, Hull, pumping 150 bbls. net, 3,827 feet; Humble Oil & Refining Co.'s No. 24 Guedry, Hull, blowing dry gas; Humphreys Corp.'s No. 3 West-Schenck, Blue Ridge, flowing around 300 bbls. net oil at 3,531 feet; Gulf Production Co.'s No. 16-B Blakely, Blue Ridge, flowing 150 bbls., 3,950 feet, and J. S. Abercrombie's No. 4 West-Schenck, Blue Ridge, pumping 150 bbls., 3,933 feet; Louisiana Oil & Gas Co.'s No. 1 Bernard, New Iberia, Iberia Parish, Louisiana, flowing 350 bbls. daily, 2,260 feet.

Abandonments were: Rycade Oil Corp.'s No. 13 Wisdom, Nash, salt at 4,405 feet; The Texas Company's No. 1 Davis, Davis Hill, junked hole, 4,638 feet; Rycade Oil Corp.'s No. 5 Bouillon fee, Bayou Bouillon, 3,872 feet; Union Sulphur Co.'s No. 738 feet, Sulphur, 2,800 feet; Shell Petroleum Corp.'s No. 5 Watkins, Black Bayou, Cameron Parish, Louisiana, dry, 1,325 feet; Gulf Production Co.'s No. 9 McCarson, Boling shallow field.

Daily average production of Coastal fields declined slightly during the week with the total daily average at 138,265 bbls., a decrease of 377 bbls. Several fields made substantial increases, but these were offset by declines in other fields. Southwest Texas' daily average production increased 3,556 bbls. due to the continued gains in the new Luling district, which now is the most active spot in the entire southern Texas area. Figures by fields are:

Texas Gulf Coast

Allen Dome	6
Barbers Hill	700
Batson	1,307
Big Creek	2,301
Blue Ridge	5,240
Brenham	150
Boling	2,791
Damon Mound	650
DeWalt	6,091
*Gay Hill	...
Goose Creek	6,411
High Island	1,302
Hull	10,113
Humble	4,186
Jasper	10
Markham	275
Nash Dome	1,000
North Dayton	635
Orange	3,170
Orchard	102
Pierce Junction	12,192
Raccoon Bend	1,311
Saratoga	955
Sour Lake	2,912
South Liberty and South Dayton	6,688
Spindletop	36,322
West Columbia	7,265
Total this week	114,085
Total last week	116,045
Decrease	1,960

*Shut in.

South Louisiana

Anse LaButte	46
Bayou Bouillon	335
Edgerly	873
Evangeline	911
Hackberry	7,223
Lockport	4,371
Sorrento	1,216
Starks	830
Sulphur	3,200
Sweet Lake	1,100
Vinton	4,045
Welsh	30
Total this week	24,180
Total last week	22,597
Increase	1,583
Total Gulf Coast	138,265
Total last week	138,642
Decrease	377

Southwest Texas

Dale	668
Gonzales	200
Kingsville	257
*Luling	23,711
Lytton Springs	1,150
Refugio	707
Somerset	1,931
Mirando district	13,600
Medina County	30
McMullen	50
Total this week	42,304
Total last week	38,748
Increase	3,556

*Including Bruner, 9,792 bbls.; Caldwell County, 8,818 bbls.; Guadalupe County, 4,387 bbls.; Larremore, 251 bbls.; Yost, 463 bbls.

Barbers Hill—Chambers County

With the completion of Humphreys Corp.'s No. 1-C Kirby on Friday as a 2,000-bbl. producer, interest at Barbers Hill over the week end was centered in Mills Bennett Petroleum Co.'s No. 2 Kirby, which also has found the deep sand at 5,402-11 feet and was preparing to set screen to test. Humphreys Corp.'s No. 6-B Kirby also had found a very rich appearing oil sand at 4,927-53 feet but is passing this up temporarily to drill to the deeper sand. Humphreys Corp.'s No. 1 Cornelia Barber is drilling shale at 2,377 feet. Bennett Petroleum Co.'s No. 1 Means is drilling gumbo at 1,245 feet and Joe Bashara's No. 1 Tarbutton at latest report was drilling at 3,121 feet. On the southwest side of the dome, Yount Lee Oil Co.'s No. 1 Chambers is drilling sand at 4,776 feet, and its No. 2 Richardson in sand at 2,002 feet.

Boling—Fort Bend and Wharton

Sun Oil Co. has found what appears to be a very rich sand in its No. 4 Kasparek on the wildcat east side of the dome. The sand was topped at 3,954 feet and the hole has gone to a total depth of 3,984 feet. The 6⅝-inch casing has been cemented at 3,853 feet. Sun's No. 4 E. C. Farmer is drilling shale and hard sand at 3,131 feet. South Texas Petroleum Co.'s No. 1 Hyde-Fotjek is drilling sand at 2,880 feet. The Texas Company's No. 1-A Dipple is in gumbo at 1,815 feet. Its No. 1-B Dipple is a derrick and its No. 1 Pleasant a rig. Gulf Production Co.'s No. 5 Bay is drilling shale and lime at 2,816 feet. Scott & Peck's No. 1 Armstrong is drilling hard sand at 3,040 feet.

On the south side of the dome, Vacuum Oil Co.'s No. 1 Taylor is drilling hard lime at 3,008 feet and its No. 2 Taylor is in shale at 1,031 feet.

Gulf Production Co.'s No. 9 McCarson, a shallow test on top of the dome, was abandoned during the week.

Blue Ridge—Fort Bend County

Three completions at Blue Ridge during the week have left few active rigs in the field. Humphreys Corp. has spudded in on its No. 5 West Schenck on the south side of the dome and in the same district Moody Corp. has made location for No. 5 West Schenck. South Texas Petroleum Co.'s No. 4 Blakely, east flank, an old well being deepened, is drilling at 3,859 feet. This company's No. 3 Lafferty is rigged up and is ready to spud in. Gulf Production Co. has rigged up for No. 6 Invincible and is rigging up for No. 14 Luscher. On the north and northwest flanks, Watts Oil Co. is going back into its No. 8 Blakely, formerly abandoned temporarily at 2,097 feet and is sidetracking at 1,893 feet. Sheffield, Telshaw & Cady are rigging up for No. 2 Blakely and Blakely & Means have a derrick for No. 2 Blakely.

Big Creek—Fort Bend County

The Texas Company's No. 4 Wheat is drilling gumbo and lime at 3,167 feet. Gulf Production Co.'s No. 23 Davis, a former well being deepened, is drilling at 2,912 feet. This company's No. 46 Davis, also a former well, is drilling deeper at 3,428 feet.

Nash Dome—Fort Bend and Brazoria

Rycade Oil Corp. drilled into salt in its No. 13 Wisdom and abandoned it at 4,405 feet. This company's No. 24 Wisdom is drilling lime and shale at 4,013 feet. Rycade's joint test with Humble Oil & Refining Co., No. 1 Wisdom, is reaming to the bottom at 5,174 feet where a sand will be tested.

Hardin County Domes

East Batson Oil Co. has started a new test at Batson, this to be its No. 17 Stateland. Paraffine Oil Co.'s No. 44 Knight tested dry at 728 feet and is to be deepened. At Saratoga, Rio Bravo Oil Co. is rigged up for No. 135 B. B. B. & C.

Pierce Junction—Harris County

Abercrombie & Harrison's No. 3 Ritter, deep sand extension test on the north flank, is drilling rock at 4,104 feet.

(Continued on Page 108)

45 wells cemented in 14 hours in the Seminole District. Only an established organization can be depended upon when an emergency arises.

HALLIBURTON OIL WELL CEMENTING CO.
Duncan, Oklahoma

New Mexico Test Is Watched Closely

Empire Co.'s 1-C State in Lea County Running Higher Than Discovery. Week Yields One Producer in Rocky Mountain Area

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., Jan. 7.—One small producer in the Florence-Canon City district in Colorado, one abandonment in the same district, and one failure on the Ashley Valley Dome in Utah, comprised completions for the week in the Rocky Mountain area. In southeastern New Mexico the Empire Gas & Fuel Co.'s No. 1-C State, 3 miles to the east of its discovery, appears to be running high based on the top of the salt, and the Texas Production Co.'s No. 1 Shepherd looks as if it would be a big gasser.

Several of the Utah wildcats report slight shows of oil, just enough to be encouraging, and Colorado had an interesting show in McLaughlin's No. 1 Williams in the fault block south of the Iles Dome, the show amounting to 1 bailerful in shale at 1,120 feet. The Midwest Refining Co.'s No. 3-SD on the Iles Dome is making considerable fluid from the Morrison sand and the Hynds Oil Co.'s No. 2 State on the Tow Creek Dome in Routt County promises to be a producer.

In Wyoming, the Government's royalty oil from Salt Creek is now being delivered to The Texas Company and the White Eagle Oil & Refining Co. under their recent bid of 21¾ cents a barrel premium. The Ohio Oil Co.'s No. 1 Pulley on the Shoshone structure near Cody is being plugged back after running into water and probably will make a fair producer. There was little outside of routine from any of the wildcats.

New Mexico

The Empire Gas & Fuel Co.'s No. 1-C State, SW cor., Section 12-21-34, in the San Simon district of Lea County in southeastern New Mexico, appears to be running about 36 feet higher than its No. 1 State, NE cor. NW, Section 8-21-35, in the same area. The well last named was completed at 3,835 feet and has been making both water and oil in equal amounts. No. 1-C State was spotted 1¾ miles west and one-half a mile south of the discovery well. It topped the salt at 1,830 feet, or 1,884 feet above sea level, while No. 1 State topped the salt at 1,750 feet, or 1,920 feet above sea level. This difference in elevation is sufficient to make the new test interesting and from now on to completion it will be closely watched. It is drilling at present at 2,000 feet in salt.

The Texas Production Co.'s No. 1 Moberly, NW SE, Section 17-26-37, in the Jal district, which has been idle for several weeks waiting for a drill stem, is again making hole and is drilling at 3,133 feet. The same company's No. 1 Cagle, NE SW, Section 9-26-37, is drilling at 3,429 feet after mudding off 80,000,000 feet of gas at higher horizons, and its No. 1 Beulah Lynch, NW cor. SE, Section 34-20-34, is drilling at 965 feet. The Texas Production Co.'s No. 1 Shepherd, SE cor. NE, Section 6-26-37, is bottomed at 3,180 feet and moving back the boilers. It is bottomed in lime and is expected to come in shortly as a gas well as it is located about halfway between the Marland's Eaves and Sholes gassers.

Gas Pocket Encountered

The Marland Production Co.'s No. 1 Lockhart, NW NW, Section 31-21-36, in the Eunice district, is drilling at 2,100 feet in salt and its No. 1 Meyer, SW cor. NW, Section 26-20-37, is drilling at 3,506 feet. The gas encountered at 2,950 feet which blew the tools up the hole and caused them to lodge, proved to be a pocket, but at 3,505 feet it had a flow of sulphur gas estimated at 4,000,000 feet. The Gypsy Oil Co.'s No. 1 Ramsey, SW cor., Section 34-21-36, in the same district, was plugged back from 3,959 feet to 3,885 feet to shut off water, but the water is still leaking in and it is shut down on top of the plug. The Gypsy's No. 1 Mattern, 3 miles to the northeast in the SW cor. SE, Section 24-21-36, has rig up and is about ready to commence spudding.

The Marland Production Co.'s No. 1 Brooks, NW cor. SW, Section 8-20-33, is bottomed at 3,760 feet with a hole full of sulphur water. More water was encountered at 3,710-30 feet. The prospects are not encouraging as it had previously a hole full of water at 3,210-20 feet. The Marland's No. 1 Reed, NE cor. SW, Section 22-20-36, is drilling in salt at 1,710 feet, and its No. 1 Warren, SW SW, Section 28-20-38, is drilling at 2,930 feet in anhydrite after setting the 8¼-inch. The same company's No. 1 Lynn, NW cor. SE, Section 26-23-36, is shut down for water at 3,482 feet.

The Maljamar Oil & Gas Co.'s No. 2 Pearsall, NE NE, Section 33-17-32, is shut down at 3,150 feet after cementing the 8¼-inch at 3,140 feet to shut off water from horizon at 2,998 feet. Hill & Abel's No. 1 Maechtel, SW cor., Section 5-26-33, is drilling at 3,650 feet in anhydrite, and Henderson, Dexter & Blair's No. 1 McDonald & Jewett, SE cor., Section 18-20-34, is shut down at 490 feet in red rock with the hole full of water.

Water in Hole

The Skelly Oil Co.'s No. 1 Joyner, NE cor. SE, Section 26-25-36, is still bottomed at 3,259 feet and has 1,400 feet of fluid in the hole, the water coming in at the rate of 3 to 6 bailers daily. The 10-inch was cemented at 2,974 feet. Further work probably will be done on the 10-inch before the 8¼-inch is run.

In Chaves County, Snowden & McSweeney's No. 1 Merchant, NW NW, Section 27-15-23, is reaming at 3,240 feet with a total depth of 3,500 feet.

In Eddy County, George F. Getty, Inc.'s No. 1 Bates & Martin, C SE SW, Section 31-20-29, in the Twin Mounds area, is drilling at 350 feet, and Flynn, Welch & Yates' No. 1 Jackson, C NE, Section 13-70-30, northeast of the Artesia Pool, is drilling at 3,240 feet. The same firm's No. 56, Section 6-19-28, in the Artesia Pool, is drilling at 1,970 feet.

There was little activity in the northwestern part of the State during the holidays. In San Juan County, J. F. Cross has gone back into his No. 1 Blackrock, C SW SW, Section 15-29-13, and drilling at 770 feet. This had previously been reported abandoned at 740 feet. A gas sand at 700 feet was too thin to be commercial and the hole will be drilled to some deeper sands in the Farmington formation. The Dorothy Oil Co. (formerly Huntington Park Oil Co.) is plugging back from 4,582 feet to an oil and gas sand at 4,243 feet in the top of the Mesa Verde. It had a good show of gas at 4,180 feet followed by sufficient oil to grease the tools. The Midwest Refin-Co.'s No. 22, SE SE, Section 36-22n-14, on the Stony Butte Dome, which was flowing 5,000 bbls. of artesian water at 3,063 feet, will be finished as a water well and used for irrigation purposes by the Indians.

Utah

Slight shows of oil in several Utah wildcats and one failure marked developments for the week in that State. The Ashley Valley Oil Co.'s No. 1, SE NW, Section 22-5s-22, in Uintah County, joint with the Utah Oil Refining Co., was abandoned at 2,100 feet, presumably in the Sundance sand. This well was drilled in a fault block on the Ashley Valley structure in the hope that a test would show the oil to have been caught in the fault block, three tests on the top of the structure having failed to encounter oil though two of these had considerable gas and oil shows in the Morrison. The last test to be drilled had both oil and gas in small quantities but not sufficiently large to be commercial.

The Utah Southern Oil Co.'s No. 1 Farnsworth, SE cor., Section 29-4s-1e, on the Pleasant Valley structure in Uintah County, is drilling at 1,885 feet in shale and showing a little gas. This is a test of the Tertiary formations. The Maude Ellen Oil Co.'s No. 1, NW SE, Section 28-3s-21e, on the Neal Dome, a Pennsylvanian test, is drilling at 1,435 feet after being shut down for several weeks, and is believed to be on top of the first sand in the Pennsylvanian. It has a slight show of oil in shale at the present depth. The second sand is expected at 1,800 feet and the main Pennsylvanian sand at 2,200 feet.

Hole is Bridged

The Western Venture Corp.'s No. 1 Krumvieda, SE NW, Section 6-5s-21e, a Tertiary test, which is 17 feet in a sand showing some saturation, is resuming at 1,282 feet after being shut down for the holidays. The 6¼-inch casing will be set to make a water shutoff after which a test of the sand will be made. The Diamond Oil Co.'s No. 1, NE NE, Section 29-8s-5e, on the Buskirk Dome, shot a showing of oil, but when it was being cleaned out, the tools stuck and the hole is bridged. A test higher on the structure probably will be drilled. The showing was through a hole full of water from a total depth of 1,700 feet.

The Utah Southern Oil Co.'s No. 1-A J. L. Shafer, Section 36-26-20, Cane Creek Dome, is drilling at 2,580 feet after being shut down for the holidays. The last 100 feet has been in black shale streaked with salt, the hole being full of water from an upper horizon. The Phillips Petroleum Co.'s No. 1 Shick, Section 16-27-16, Barrier Creek Dome, in Wayne County, is drilling below 4,300 feet in lime. The Navajo Petroleum Co.'s No. 1 State, Section 2-20-21, Grand County, is shut down at 2,845 feet on account of cold weather. It is bottomed just above the objective sand and it was decided not to drill any deeper until weather conditions were more favorable.

Colorado

Most of the Colorado wildcats located remotely from their sources of supplies are shut down. The Marland Petroleum Co.'s No. 1 Pipe Springs, Section 27-27-49, in Bent County, which was shut down at 3,987 feet to bury water lines, will not resume until spring. Two completions were reported for the week, both in Fremont County. One of these was Henry Dickason and others' No. 1 Digiacomo, SE SE, Section 11-19-70, southeast of production, which was abandoned at 2,720 feet. It had several shows of oil and gas, but none of these were commercial. The other was the Continental Oil Co.'s No. 3 McKenzie, SE NW, Section 1-19-70, completed as a producer at 1,940 feet, but not yet tested.

The Iles district in Moffat County had an interesting development in Thomas McLaughlin and others' No. 1 Williams, NW SW, Section 2-3n-92, which had a show of oil at 1,120 feet in shale amounting to 1 bailer per day. This well is located south of the Iles Dome and north of the Thornburg Dome and in a fault block between the two structures. The show of oil at this depth is considered encouraging. There are several big gas wells on the Thornburg structure, while the Iles Dome is producing from the Morrison and Sundance sands. A big east-west fault divides the two structures and it has been held by geologists that there were possibilities for large production in that area. This is a joint test in which the Shaffer Oil & Refining Co., the Morapas Oil Corp., the Joe Miller Drilling Co., and McLaughlin and associates, are participating.

Sundance Looks Promising

The Midwest Refining Co.'s No. 2-SD Shaw, NW NE NW, Section 27-4n-92, on the south flank of the Iles Dome, topped a sand at 3,162 feet and at 3,195 feet there were 1,300 feet of oil and 700 feet of water standing in the hole. It is drilling below 3,027 feet with no material change in the situation. The sand is either the first or second Morrison, probably the first, and the well is headed for the Sundance. It is one location to the east of No. 4 Shaw, one of the biggest Morrison sand wells on the structure at the start, but which developed water. The Morrison subsequently was plugged off and the hole drilled to the Sundance where it made a good producer. The showing in the upper measures of the Morrison in No. 3 Shaw makes the Sundance promising. W. F. McCormick's No. 1 Sales, SE SE, Section 28-4-92, is still shut down at 2,730 feet and it may be necessary to skid the rig and start from the top as the hole is not in good shape. The Midwest Refining Co.'s No. 24-SD Parkinson, SE NW, Section 22-4-92, is drilling at 2,635 feet in black shale, and the Texas Production Co.'s No. 36 Lloyd, SE cor., Section 21-4-92, is drilling at 2,960 feet.

On the Moffat Dome, the Texas Production Co.'s No. 11 Knowlton, SE cor., Section 33-5n-91, is shut down at 3,428 feet waiting for a shipment of cotton seed hulls to mix with the mud to cement off the walls of the well while going through the Dakota. This is a rotary test to the Sundance which has made unusually good time up to now. The idea of using cotton seed hulls is a new one in this territory and is credited to one of the drillers who came from the land of cotton in Texas. The Texas company's No. 5 Walter Wick, Section

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REFUGE HUTS SAVE FIVE FROM DEATH IN THE SNOW

Two years ago when the California Petroleum Corp. undertook winter operations in the La Barge Field in southwestern Wyoming it constructed several refuge cabins along the roads at strategical places and equipped them with food supplies and facilities for employes or others caught in the severe storms that prevail at this season of the year. One of these cabins served probably to save a party of five from freezing to death the past week. Joe Minton, an oil operator in that district and Mr. Blundy, a driller at the Newlon camp, were members of the party accompanying Mrs. Kuhlman to Kemmerer, where her father had died. Mrs. Minton and Norval Alleman, of Kemmerer, were the other members. Big snow drifts were encountered and after shoveling out the road for 7 miles the men became too exhausted to go farther. Refuge was found in one of the cabins.

XUM

.....when men love the task

A jug is rather a prosaic thing, with feet of clay in a most literal sense. But up in New England the members of a certain family have moulded jugs for a hundred years or so with hands that never tremble. They have made of the humble jug a thing of art, as truly as a rose in the hands of Nature. Of course no sane man ever bought a pump because it had artistic lines, but when men build pumps for a very long time, loving the task, as in the case of the makers of Transit Pumps, they come to turn out something very fine. A Transit Pump for any oil country purpose has about the same relation to ordinary pumps as a treasured piece of pottery to the jugs the farmers carry to the fields.

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Fear Rush to Drill Into the Miocene

Failure to Find Nordstrum or Buckbee Zones in Western Part of Santa Fe Springs May Lead to Deeper Drilling

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., Jan. 5.—The failure of several wells in the western part of the Santa Fe Springs Field to encounter either the productive Nordstrum or Buckbee zones may precipitate a serious situation in the very near future if drilling is continued indefinitely, as this work may prematurely open up the underlying Miocene formation which has proved so highly prolific at Long Beach. There has not yet been any occasion up on top of the structure at Santa Fe Springs to prospect below the Buckbee zone in as much as this horizon is still yielding large flowing wells, but less favorable conditions around the western edge of the field have resulted in the decision to keep on drilling in order to get production. The seriousness of this alarming situation is quite obvious as this work may blow the lid off, especially in view of the fact that Miocene development will become general throughout the field if exceptionally big production is secured. It is the general consensus of opinion that the Nordstrum and Buckbee zones now under development are of lower Pliocene age and that the underlying 2,000 feet or more of Miocene formation will in all probability be found highly productive. There is no reason to anticipate an unconformity in stratigraphic conditions at Santa Fe Springs, in fact all geological correlations tend to confirm the anticipated productivity of sands below the Buckbee horizon. The failure to find the Nordstrum and Buckbee zones in the western end of the field has resulted in the temporary suspension of drilling operations on six wells pending the outcome of work on the Associated's No. 2 Clark, now rotating ahead at 6,670 feet and the Richfield's No. 2 Elliott, which is making hole at 6,250 feet. Both of these wells were originally scheduled for completion in the Buckbee zone around 5,900 feet, but they will probably now be carried down for deeper production, although there is a bare possibility that this exploration work may be temporarily suspended in order to hold off Miocene development as long as possible.

Unusual Situation

Deep zone exploitation at Santa Fe Springs has resulted in one of the most unusual situations that has ever characterized California development work.

Instead of opening the entire thickness of Nordstrum zone it would probably be a better policy to cement off in the Nordstrum shale around 5,000 feet and produce from the upper 250 feet of the Nordstrum zone. This part of the intermediate horizon is much more productive than the lower part of the Nordstrum zone and will yield absolutely clean oil. One of the most important factors contributing to the troublesome water situation at Santa Fe Springs in the failure to core the Nordstrum shale and set pipe at this point. I am rather inclined to believe that the Nordstrum zone is definitely divided into an upper and lower portion by a high head water and that much of the water trouble is due to the failure to make this distinction.

Variations in Completions

Completions below the Meyer zone at Santa Fe Eprings have shown a considerable variation both in quality and quantity of production. The Buckbee horizon has contributed all but a few of the 42 deep wells completed up to the present time, but all indivations point to the fact that the Nordstrum horizon should yield a larger ultimate recovery if properly protected. The present daily well production of the Buckbee zone is 2,100 bbls. as compared with 4,500 bbls. per day for Nordstrum zone production. Unless immediate steps are taken another productive horizon at Santa Fe Springs will be ruined through unnecessary dissipation of natural gas and the failure to protect the oil sands from water contamination. The several zones at Santa Fe Springs have been developed successfully from top to bottom. The Foix and Bell horizons received first consideration during the early stages of development, but upon discovery of the underlying Meyer zone the two upper horizons were passed up in the mad rush for more substantial production. As a result of this condition the Bell zone has been almost completely ruined.

The Nordstrum zone, located between the Meyer and Buckbee horizons, is apparently destined to receive the same consideration as the Bell zone and the outcome will in all probability be the same.

Although the deep Buckbee zone is contributing by far the largest amount of current production, the Nordstrum horizon would probably show a large ultimate recovery under favorable conditions due to its high volume of gas and greater thickness of oil sand. The Buckbee zone is approximately 180 feet thick on the apex of the structure as compared with a maximum thickness of about 460 feet for the Nordstrum zone. A check of development work under way at the present time indicates the probable completion of about 25 new wells within the next few weeks and unless something unforseen develops daily output at Santa Fe Springs should approach the 200,000-bbl. mark around the first of February.

Important Decision

One of the most interesting developments in California during the past week was the ruling of the California Supreme Court upholding the constitutionality of the 1921 and 1923 acts of the state legislature permitting the leasing of coastal tidelands for the production of oil and gas. The decision was the result of a suit filed by a number of individuals seeking permission to drill or lease tidelands in the Rincon district of Ventura County, and although the basic principle of the State's rights was upheld the specific cases were attended with several qualifications, which mean additional litigation. It will be recalled that the California legislature passed a law directing the surveyor-general to grant applicants the right to drill on tidelands in proven areas upon payment of a stipulated filing fee and a guaranteed 5 per cent royalty of all oil and gas secured. The surveyor-general obtained an opinion from Attorney-General Webb that the basic leasing act of 1921 was unconstitutional because it was contrary to the State's policy of conservation and that such drilling would interfere with navigation and fisheries. It might be mentioned in passing that the attorney-general's ruling was probably prejudiced because of foolish propaganda that tideland drilling would ruin the scenic beauty of California's 1,500 miles of seacoast and contaminate bathing beaches. The Supreme Court's decision holding the law valid overruled Attorney-General Webb's opinion and makes it obligatory for the Surveyor-General to comply with provisions of the act. The significance of the Supreme Court's decision lies in the fact that it affects the Elwood, Rincon and Huntington Beach Fields where production is known to exist out on the open ocean beyond mean high tide. The decision of the Supreme Court in upholding the constitutionality of California's leasing law also validates the rights of littoral owners. Under the leasing acts, drilling operations cannot be carried on within 2 miles of the corporate limits of any city, and it is believed this specification automatically restricts tideland development at Huntington Beach. The 1929 state legislature, which meets in Sacramento next Monday, January 7, will become the battleground of a new engagement in the "save the beaches" controversy. The fight, precipitated by a recent state Supreme Court decision, will rage around an effort of conservationists to repeal the 1921 statute permitting drilling on state-owned tidelands by provate operators, according to A. R. Heron, director of finance of the State.

Kettleman Hills

Drilling operations in the recently discovered Kettleman Hills Field of Kings County are getting under way quite rapidly and there will probably be at least 10 wells making hole within the next few weeks. The Standard has already spudded in its initial project in this field and preparations are being pushed ahead to start three more immediately. The Standard is the largest landowner in this huge potential area, owning in fee every alternate square mile. This property was acquired when the Standard took over the properties and holdings of the old Pacific Oil Co., which concern originally received every alternate section as a bonus when the Southern Pacific Railroad constructed its San Joaquin Valley line. The Milham Exploration Co. is rushing preparations for an early spud in No. 1 Beal in Section 34-21-17, and No. 2 Elliott in Section 2-22-17. Both of these wells are expected to be making hole within the next three or four days. The Marland, which has some excellent holdings in the new field, has two locations staked on the Elliott property, both of which are located in close

(Continued on Page 58)

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well, location—	S	T	R	Depth	Status
California Western Oil Co., No. 1 Elkins, Ventura Co.	28-	4-	19	2,951	suspended
Exline, Emma, No. 1 Saticoy, Ventura Co.	33-	3-	21	2,412	fishing
Ohio Oil Co., No. 1 Saticoy, Ventura Co.	32-	3-	21	4,806	br. sh. drilling
Standard, No. 5-9 Saticoy, Ventura Co.	1-	2-	22	4,170	hd. sd. drilling
American Oil Co., No. 1 Camarillo, Ventura Co.	33-	2-	20	650	hd sd. drilling
Star Pet. Co., No. 2 Canet, Ventura Co.	13-	3-	23	6,775	suspended
Bolsa Chica, No. 1 Temescal, Ventura Co.	3-	4-	18	Rig	rigging up
Miley, E. J., No. 2 Casitas, Ventura Co.	12-	3-	21	785	suspended
Shell, No. 1 Marr, Simi	31-	3-	17	962	surface pipe
Continental, No. 1 Sulphur Mountain, Ventura Co.	21-	4-	22	3,060	br. sh. drilling
Continental, No. 2 Sulphur Mountain, Ventura Co.	22-	4-	22	3,140	br. sh. drilling
Milham Expltn., No. 1-A Buttonwillow, Kern Co.	8-	28-	23	4,662	gas well
Milham Expltn., No. 2 Buttonwillow, Kern Co.	8-	28-	23	2,730	gas well
Milham Expltn., No. 3 Buttonwillow, Kern Co.	8-	28-	23	2,694	gas well
Milham Expltn., No. 4 Buttonwillow, Kern Co.	6-	28-	23	2,670	gas well
Milham Expltn., No. 5 Buttonwillow, Kern Co.	5-	28-	23	2,500	gas well
Milham Expltn., No. 6 Buttonwillow, Kern Co.	8-	28-	23	2,676	gas well
Milham Expltn., No. 7 Buttonwillow, Kern Co.	6-	28-	23	2,720	suspended
Milham Expltn., No. 8 Buttonwillow, Kern Co.	16-	28-	23	4,500	suspended
Doheny-Stone, No. 1 Salisbury, Kern Co.	7-	29-	24	4,631	cleaning out
South. Calif. Gas Co., No. 1 Buttonwillow, Kern Co.	4-	28-	23	4,272	suspended
South. Calif. Gas Co., No. 2 Buttonwillow, Kern Co.	27-	28-	23	Rig	suspended
Lincoln Drlg. Co., No. 1 Buttonwillow, Kern Co.	6-	28-	23	820	sd. sh. drilling
Richfield Oil Co., No. 1 Semitropic, Kern Co.	21-	26-	22	4,760	mud gas
Richfield Oil Co., No. 2 Semitropic, Kern Co.	36-	27-	23	.....	location
Pacific Eastern, No. 1 Union Ave., Kern Co.	6-	30-	28	5,640	suspended
Pacific Eastern, No. 2 Union Ave., Kern Co.	6-	30-	23	4,500	suspended
Pacific Eastern, No. 3 Union Ave., Kern Co.	6-	30-	28	4,443	gas, shut in
Pacific Eastern, No. 5 Union Ave., Kern Co.	5-	30-	28	4,991	uspended
Stabler, W. W., No. 1 Commanche Point, Kern Co.	23-	32-	29	3,114	gr. sh. drilling
General Pet., No. 3 Edison, Kern Co.	5-	30-	29	3,860	br. sh. drilling
Cymark Oil Co., No. 1 Edison, Kern Co.	24-	29-	29	716	sd. drilling
Midway Northern, No. 1 Edison, Kern Co.	29-	29-	30	3,841	br. sh. drilling
Delzel, S. A., No. 1 Delano, Kern Co.	4-	26-	27	3,193	cleaning out
Elmer Oil Co., No. 1 Shafter, Kern Co.	8-	28-	25	5,280	gr. sd. drilling
Standard, No. 1 San Emidio, Kern Co.	35-	11-	22	3,793	fishing
Union, No. 1 San Emidio, Kern Co.	5-	10-	21	1,408	bl. sh. drilling
Perry, C. V., No. 1 McFarland, Kern Co.	34-	26-	26	1,890	bl. sh. drilling
Fresno Madera Oil Co., No. 1 Clovis, Fresno	18-	12-	21	4,194	suspended
Currency Pet. Co., No. 1 Vineyard, Fresno Co.	28-	21-	14	950	suspended
Thomas Pet. Co., Well No. 1, Fresno Co.	33-	22-	16	.....	location
Union, No. 1 Huasna, San Luis Obispo	34-	32-	15	3,232	redrilling
Union, No. 1 North Huasna, San Luis Obispo Co.	12-	32-	14	2,880	br. sh. drilling
Panorama Oil Co., Well No. 1, San Luis Obispo Co.	7-	31-	21	3,269	br. sh. drilling
Turman, T. H., Well No. 1, San Luis Obispo Co.	13-	32-	22	Mtl.	building rig
Sequoia Oil Co., Well No. 2, San Mateo Co.	15-	7-	5	1,605	suspended
Sunset Pacific, No. 1 Saratoga, San Mateo Co.	13-	7-	4	Rig	suspended
Shell, No. 3 Petaluma, Sonoma Co.	29-	5-	6	2,170	hd. sd. drilling
Calhoma Oil Co., No. 1 Livermore, Alameda Co.	9-	3-	3	1,350	suspended
Foster & Hammill, Well No. 1, Alameda Co.	21-	3-	3	Rig	suspended
R. Y. Hanlyn, Well No. 1, Alameda Co.	3-	5-	2	360	hd. sd. drilling
Shell, No. 1 Guadalupe, Santa Barbara Co.	36-	10-	35	311	sd. drilling
Shell, No. 1 Goleta, Santa Barbara Co.	6-	4-	30	886	suspended
Standard, No. 1 Point Conception, Santa Barbara Co.	.....			.....	location
Standard, No. 1 Point Arguello, Santa Barbara Co.	X-	7-	35	742	sd. drilling
Bankline Oil Co., No. 1 Mesa, Santa Barbara Co.	X-	4-	27	.....	location
Tepesquit Oil Co., Well No. 1, Santa Barbara Co.	3-	9-	32	2,710	suspended
Becker, Geo. F., No. 1 Summerland, Santa Barbara Co.	33-	4-	25	3,090	suspended
Channel Oil Co., Well No. 1 Santa Barbara Co.	29-	4-	27	6,301	sh. drilling
Continental, No. 1 Carpenteria, Santa Barbara Co.	33-	4-	25	3,440	rebuilding rig
Southwest Prod. Co., No. 1 Gillam, Santa Barbara Co.	2-	4-	28	1,992	suspended
Colus Oil Co., Well No. 1, Colusa Co.	31-	15-	4	380	redrilling
Nuna Oil Co., Well No. 1, Colusa Co.	19-	16-	5	400	hd. sd. drilling
Superior Oil Co., No. 1 Salvada, Colusa Co.	31-	15-	4	1,610	suspended
North Counties Oil Co., Well No. 2, Humboldt Co.	36-	2-	1	2,205	suspended
Humboldt Oil Co., Well No. 1, Humboldt Co.	6-	2-	1	3,041	redrilling
Kuhns, H. L., Well No. 1, Merced Co.	9-	12-	9	1,545	hd. sd. drilling
Angiola Oil Co., No. 1 Angiola, Tulare Co.	27-	22-	23	1,708	hd. sd. drilling

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Hurst Oil Co., No. 1 Inglewood, Los Angeles Co.	28-	2-	14	122	sd. drilling
Mont. Park Oil Co., No. 1 Browning, Monterey Park	26-	1-	12	4,420	suspended
Mont. Park Pet. Co., No. 1 Jepson, Monterey Park	25-	1-	12	3,937	suspended
Dollar Oil Co., No. 1 Bell, Los Angeles Co.	22-	3-	12	3,680	gr. sd. drilling
Associated, No. 1 Taylor, Los Angeles Co.	33-	2-	12	5,702	sd. sh. drilling
Rio Grande, No. 1 Downey, Los Angeles Co.	34-	2-	12	1,041	sd. drilling
Empire Drlg. Co., No. 1 Bell, Los Angeles Co.	14-	2-	12	5,350	gr. sd. drilling
Continental Oil Co., No. 1 La Mirada, Los Angeles Co.	10-	3-	11	5,720	some gas
Shell, No. 2 Mission, San Fernando	4-	2-	15	5,692	plug 4,685 ft.
Security Pet. Co., No. 1 Lynwood, Los Angeles Co.	13-	3-	13	5,333	suspended
Richfield, No. 1 Maywood, Los Angeles Co.	13-	2-	13	1,929	hd. sd. drilling
Easton & Smith, No. 1 Calabasas, Los Angeles Co.	19-	1-	17	2,982	suspended
Russell Oil Co., No. 2 Joughin, Los Angeles Co.	25-	3-	17	1,021	br. sh. drilling
Pomona Oil Co., Well No. 1, Los Angeles Co.	31-	1-	8	1,981	suspended
Anchor Oil Co., No. 1 Puente, Los Angeles Co.	19-	2-	10	4,820	suspended
Richfield Oil Co., No. 1 Puente, Los Angeles Co.	9-	2-	10	3,202	sd. sh. drilling
Calif. Eastern, No. 1 Wickham, Los Angeles Co.	32-	5-	17	2,860	oil sand
The Texas Company, No. 1 Anaheim, Orange Co.	35-	4-	10	3,181	hd. sd. drilling
Bastanchury Ranch Co., Well No. 1, Orange Co.	31-	3-	10	Rig	suspended
Mesa Pet., No. 1 Newport, Orange Co.	21-	6-	10	3,482	hd. sd. drilling
West. Drlg. & Prod. Co., No. 1 Newport, Orange Co.	18-	6-	10	4,370	gr. sd. drilling
Hall Pet. Co., No. 1 Murrietta, Riverside Co.	23-	7-	3	931	cleaning out
Hemet Pet. Co., No. 1 Ward, Riverside Co.	9-	5-	1	3,071	hd. sd. drilling
Davenport Oil & Gas Co., No. 1 San Marcos, San Diego Co.	30-	12-	8	892	hd. sd. drilling
Turner, S. S., No. 1 Escondido, San Diego Co.	25-	12-	2	1,527	suspended

Michigan Wells Flow 100 Bbls. an Hour

Two Completed in Territory Between Muskegon Township and Laketon Township Producers. New 500-Bbl. Well

By Special Correspondent

MUSKEGON, Mich., Jan. 5.—Gathering lines of the Dixie Oil Co., subsidiary of the Standard Oil Co. of Indiana, were inadequate today to handle the production of a number of new wells completed in the territory between previous production in the Muskegon and Laketon Township areas.

Two wells were flowing today at a rate of more than 100 bbls. an hour and estimated good for from 1,500 to 2,000 bbls. as initial producers in the Dundee formation.

The Swastika Oil & Gas Co.'s No. 1 Gilbert, NW NE Section 7-10-16, first reported as a 1,000-bbl. producer, flowed 500 bbls. in three hours today and necessitated the erection of additional field tanks. Total tankage of 1,650 bbls. is being erected.

The Rugattie Oil Co.'s No. 1 Dick, NW SE Section 12-10-17, Laketon Township, which came in last week, was flowing today at the rate of more than 100 bbls. an hour.

A new 500-bbl. producer was completed in the same intervening area today. It is the Concord Oil & Gas Co.'s No. 1 Giles, NW SE Section 7-10-16. Oil was struck at 2,020 feet and drilling was suspended immediately. The well filled two 100-bbl. tanks over night and they were overflowing today for lack of field tankage or facilities for removing the oil. It will be drilled about 2 feet deeper before completion and is expected to increase greatly.

Pipe line runs are mounting rapidly and would be more than double the present 2,000 bbls. if all wells could be flowed wide open.

Nelson & Witt's No. 1 Andree, NW SE Section 12-10-17, Laketon Township, brought in before New Year's Day as a 400-bbl. initial producer in the Dundee formation at 2,045-2,048 feet, flowed 250 bbls. in the first 12 hours and was shut in to await connecting of oil lines. The Nelson and Witt well is just west of the Hugattie Oil Co.'s No. 1 Dick.

Other Completions

Three small pumpers also were completed this week, one in the Dundee formation, one in the upper Traverse pay sands and the other in the lower Traverse formation.

The Dixie Oil Co.'s No. 2-D Dirkes, NW NE Section 9-10-16, came in at 2,058 feet and filled up with 800 feet of oil. It is expected to make about 20 bbls. a day.

The Lima Oil Corp.'s No. 2 Haight, NE SE Section 9-10-16, will make about a 40-bbl. pumper in the upper Traverse formation at 1,618-28 feet; bottom 1,641 feet.

The Muskegon Oil Corp.'s No. 1 Daniloff, NE NW Section 8-10-16, was shot but failed to flow from the lower Traverse pay sands at about 1,900 feet. It will make about a 50-bbl. pumper.

The Muskegon-Ottawa-Crude Oil companies' No. 2 Becker, NW SW Section 4-10-16, was drilled into the Dundee pay sands to 2,074 feet, getting the bottom salt water at 2,072 feet and no oil or gas. Operators are considering drilling it to the Niagara formation at about 3,200 feet. They will ask dry hole money.

Two wells were drilling into the Dundee pay sands today in the new and rich producing area between the previous wells in Muskegon and Laketon Townships. They are the Concord Oil & Gas Co.'s No. 1 Giles, NW SE Section 7-10-16, Muskegon Township, cased and cemented at 2,015 feet; and the Eureka Gas & Oil Co.'s No. 1 Hewitt, SE NE Section 12-10-17, Laketon Township, cased and cemented at 2,008 feet.

Maire-Caswell-Kidder's No. 1 Pappas, NW SE Section 4-10-16, had a small show of gas at 2,094 feet, but was having difficulty with a leaky casing. Formations are running low.

The Swastika Oil & Gas Co.'s No. 1 Barr, NW NE Section 14-10-16, Muskegon Township, is shut down at 2,068 feet after striking a deposit of putty-like paraffin. It is so far east of production it would almost be called a wildcat.

Being Drilled Deeper

The Muskegon-Ottawa-Crude Oil companies' No. 1 Torrent, NE SW Section 8-10-16, brought in two weeks ago, was being drilled deeper into the Dundee pay sands. Oil was struck with little gas at 2,012 feet before the holidays and it made about 25 bbls. initial.

The Puritan-Goldboss' No. 1 McLaughlin, NE SE Section 5-10-16, is still shut down at 1,745 feet with a crooked hole. The well may be abandoned or drilled to the Niagara formation as a deep test.

The Johnson Oil Refining Co.'s No. 3 L. Heinz, SW SE Section 9-10-16, is on the way to the Dundee formation. It may define the east edge of production in the Dundee pay sands in Muskegon Township.

E. L. Robinson's No. 1 Flentje-Splettztoser, SE NE Section 9-10-16, will be plugged back to the upper Traverse and shot.

A show of oil was encountered in the Great Western Oil & Gas Co.'s No. 1 Warren at 1,732 feet, an unusually great depth for the discovery of oil in the upper Traverse pay sands. It was drilled to 1,780 feet and has several hundred feet of fluid in the hole.

Three wells north of the Swastika Oil & Gas Co.'s No. 1 Giles, SE SE Section 6-10-16, are attracting attention as possible extensions.

Show of Oil

L. E. Kennedy's No. 1 Giles, NE SE Section 6-10-17, closest to the Swastika-Giles well, deepest at 1,850 feet. A good show of oil was encountered in the upper Traverse at 1,673 feet.

The Commonwealth Co.'s No. 1 Trierweiler, NE NE Section 6-10-16, had a show of oil in the upper Traverse at 1,680 feet and is drilling at 1,800 feet.

Six wells are spudding, four are rigging, three have rigs on location, five have rigs moving in, and there are 27 locations previously announced on which there is no activity.

Seven new locations in Muskegon Township were announced this week: J. V. Howard's No. 1 Cook, NW NW Section 8-10-16; Brown & Cornelius Nos. 1, 2 and 3 Host, SE SE Section 5-10-16; Kelley Goldboss' No. 3 Giles, SE SW Section 6-10-16; Lima Oil Corp.'s No. 3 Haight, SE NE Section 9-10-16; and Gilette & Beebe's No. 1 Orr, SW NW Section 5-10-16.

Laketon Township

The Reed Oil Co.'s No. 1 H. Young, the second well completed in this area, was opened and flowed 800 bbls. in the first 24 hours. With 700 pounds of back pressure it continues to flow about 600 bbls. a day.

A good show of oil was encountered in the Royal Petroleum Co.'s No. 1 Lamstein, SE SE Section 1-10-17, in the upper Traverse at 1,685 feet. It was to be tubed at 1,725 feet when there was 1,000 feet of oil in the hole.

The Laketon Oil Co.'s No. 1 Phelps, NW NE Section 1-10-17, farther north of any wells in this part of the field, had struck nothing at more than 2,200 feet today. Drillers were anticipating a dry hole.

Five wells are spudding or driving pipe: Nelson and Witt's No. 1 G. Fenner, NW SE Section 11-10-17; Ohio Oil Co.'s No. 1 Gates, NE NE Section 11-10-17; H. A. Weideman and others' No. 1 Comley, NE NE Section 14-10-17; Paragon Oil Co.'s No. 1 Sebolz, SE NE Section 12-10-17, and the Double Shot Oil Co.'s No. 1 H. Dykstra, NW SE Section 12-10-17.

Three wells are rigging and there is a rig on a fourth location: Johnson Oil Refining Co.'s No. 2 Thompson, SW NE Section 12-10-17; Reed Oil Co.'s No. 2 Young, SE NE Section 11-10-17, and Nelson and Witt's No. 1 F. J. Gates, SW NE Section 11-10-17. The Puritan Oil Co. has a rig on J. Kase, NE NE Section 2-10-17, but operations will not start until the Laketon-Phelps well has been completed.

Nine new locations have been announced: Johnson Oil Refining Co.'s No. 3 and No. 5 Thompson, SE NW Section 12-10-17; Johnson Oil Refining Co.'s No. 4 Thompson, SW NE Section 12-10-17; Puritan Oil Co.'s No. 1 DeGroot, NW SE Section 12-10-17; Dixie Oil Co.'s No. 1 J. D. Ross, NE SW Section 12-10-17; Johnson Oil Refining Co.'s No. 1 King, SE NW Section 11-10-17; J. V. Howard's No. 1 Savacool, NW NE Section 12-10-17; J. V. Howard's No. 1 Dinen, NE SE Section 11-10-27, and Ohio Oil Co.'s No. 2 Gates, NE NE Section 11-10-17.

Muskegon County Wildcats

Harper and Newman's No. 1 Cook, NE NE Section 2-9-16, Fruitport Township, is nearing 1,800 feet and drilling in the upper Traverse formation.

The Sun Oil Co.'s No. 1 Grelewicz, SE NE Section 26-11-16, Dalton Township, was drilling at 1,975 feet and nearing the lower Traverse. It will be drilled to the Dundee at about 2,250 feet.

The Eureka Oil & Gas Co.'s No. 1 Jane Featherstone, SW SW Section 35-11-16, also in Dalton Township, is drilling at 1,465 feet with formations running more than 100 feet lower than in Muskegon.

Only two other Muskegon County wildcat wells were drilling: J. F. Carpenter's No. 1 Jens Jensen well, SE SE Section 2-11-15, Cedar Creek Township, at about 350 feet, and the White River Oil Corp.'s No. 1 Montague, SW SW Section 21-12-17, Montague Township, at 800 feet.

The Fink Development Co.'s No. 1 Nash, SW NW Section 20-9-14, Ravenna Township, is bailing out water and waiting for orders to drill to the Dundee formation. A show of oil was encountered in the upper Traverse at about 1,880 feet.

The Shifting Sands Oil Syndicate's No. 1 fee, SW NW Section 20-11-15, Cedar Creek Township, in which a show of oil and gas was encountered at 1,817 feet with water below it, and the Creek Land Development Co.'s No. 1 Wittels, NE NE Section 34-11-15, also in Cedar Creek Township, drilling at 1,275 feet, are shut down.

Two wells are rigging: Cloverville Oil Co.'s No. 1 Born, NE NE Section 12-9-16, Fruitport Township, and P. G. Fennell and others' No. 1 Gustafson, SE SE Section 19-11-16, Dalton Township.

A rig is being moved to the Charles

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OKALTA WELL IN TURNER VALLEY ESTIMATED 100 BBLS. SETTLED

By Victor Lauriston

Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Jan. 5.—In the Turner Valley Field, southwest of Calgary, Okalta Oils' No. 2, LSD 8, Section 1-20-3w5, is reported a light crude producer in the Okalta sand at 3,170 feet. This is a new oil horizon somewhat higher than the Home sand of the Fernie shales. Oil rose in the hole 1,200 feet, and 12 hours continuous bailing failed to lower it; a later test after the well was let stand showed 225 bbls. in three eight-hour shifts. It is expected it will make 100 bbls. a day settled production. It will be placed in production at this depth, but if the production declines, the test will be continued to the deep lime. Okalta's No. 1, LSD 1, same section, is installing two new separators to handle the west gas flow; the well, producing from the deep lime at 5,040 feet, has been making around 650 bbls. a day with partial crude naphtha recovery. Okalta's No. 3, LSD 9, same section, has resumed drilling after landing 12½-inch casing at 2,200 feet. Location has been made for Okalta's No. 4 in LSD 1, Section 1-20-3w5, about midway between Okalta's Nos. 1 and 2, and on the south side of Sheep River.

Regent Oil & Gas Co., LSD 16, Section 1-20-3w5, is drilling below 30 feet in the deep lime, with considerable wet gas, and a potential crude naphtha recovery of 50 bbls. a day. The big wet gas horizon has not been reached, and drilling is being continued. Casing was cemented in the top of the lime at around 3,756 feet.

McLeod Oil Co.'s No. 4, LSD 16, Section 1-20-3w4, is drilling 155 feet in the limestone at 3,885 feet, with a wet gas flow estimated at 5,000,000 feet a day. McLeod's No. 3, same LSD, is at 4,871 feet and fishing for 200 feet of drill rods lost in the hole.

Home Oil Co.'s No. 1, LSD 10, Section 20-19-2w5, has finished changing to a diamond drill outfit to carry the test into the deep lime. It got the limestone at 5,170 feet and after cementing casing in the top of the lime, the cable tools carried the test about 30 feet into that formation, getting a gas flow of 3,000,000 feet a day with considerable pressure. This is the first test in the south end of the Turner Valley to get into the deep lime, and interesting developments are looked for when the drill reaches the big production horizon. Home's No. 4, Section 20-19-2w5, is being rigged up. Home's No. 3, LSD 14, same section, is at 4,338 feet and drilling on a lost underreamer lug. Northwest Associated's No. 1, LSD 6, same section, is drilling at 2,866 feet.

Royalite Operators

Royalite Oil Co.'s No. 12, LSD 3, Section 13-20-3w5, is drilling at 3,030 feet. Royalite's No. 13, LSD 6, Section 13-20-3w5, is drilling at 4,670 feet. Royalite's No. 14, LSD 4, Section 7-20-3w5, which was in the deep lime at 3,248 feet, is trying to clear the hole with a Hughes bit at 3,245 feet. Royalite's No. 15, LSD 1, Section 12-20-3w5, is drilling at 2,692 feet. Royalite's No. 16, LSD 2, Section 12-20-3w5, is drilling at 4,268 feet. Royalite's No. 17, LSD 13, Section 6-20-2w5, is at 3,755 feet and drilling. Royalite's No. 18, LSD 15, Section 12-20-3w5, is drilling at 3,752 feet. Royalite's No. 19, LSD 5, Section 6-20-2w5, is at 3,255 feet and drilling. Royalite's No. 20, LSD 7, Section 12-20-3w5, is drilling at 2,529 feet. Royalite's No. 21, is drilling at 186 feet after cementing casing at 182 feet.

Vulcan Oils' No. 1, LSD 11, Section 13-20-3w5, has been delayed owing to

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Pensacola, Fla.

CALIFORNIA FIELDS

(Continued from Page 55)

proximity to the Milham's discovery well and consequently practically assured of production. George F. Getty, Bolsa Chica Oil Co., E. J. Miley and E. L. Doheny are also rushing work ahead. The Bolsa Chica, which was really the first concern to actually produce oil in the Ketteleman Hills, has put its No. 1 back on a pumping test after a suspension of several months. This well, located in Section 30-23-19, is pumping 25 bbls. of 15.7 gravity oil, which will be utilized for fuel in the drilling of its deep test in the north dome. Practically all of the operators, however, will use electrical energy, although it is quite possible that the Milham Exploration Co. may have a surplus of gas which can be used to advantage.

Elwood

The Supreme Court's decision upholding the validity of the California leasing act will probably have a direct bearing on future production on the prolific Elwood Field of Santa Barbara County in as much as a considerable portion of the potential productive acreage of this field is located out in the open ocean and subject to tideland drilling. Elwood tidelands are susceptible to development because the ocean bottom slopes off gradually and it would not be at all surprising if the Barnsdall and Rio Grande started out beyond mean high tide in the near future, although many are inclined to believe that the surveyor general will arbitrarily refuse to issue permits for work. These two companies took steps several months ago to protect their land holdings by filing requests for tideland drilling permits. It remains to be seen, however, what position will be taken by the surveyor general. The Barnsdall and Rio Grande are running three strings of tools in the Elwood Field at the present time and two more wells are scheduled to get under way in the very near future. No. 4 Bell will probably be spudded in some time within the next 15 days as the equipment from No. 2 Doty will be utilized in the drilling of this well as soon as the latter is on production. No. 2 Doty, which was cemented several days ago, should be tanking oil very shortly and since it is located in proven territory substantial production may be anticipated. None of the various other operators prospecting around the edge of the Elwood Field found any encouragement during the week and as these holes go down they confirm the opinion that the Barnsdall and Rio Grande control all of the potentially productive acreage in this field.

Santa Fe Springs

Daily production at Santa Fe Springs continued its upswing during the past week and with a large number of new wells nearing completion the output of this field should register a substantial gain during the next 30 days. The Union chalked up an excellent well a few days ago when No. 12 Alexander was finished in the intermediate Nordstrum zone flowing 5,725 bbls. of exceptionally clean 34.9 gravity oil and 10,000,000 feet of natural gas daily from 5,438 feet. The completion of this new well gives the Union a daily production in this field of 15,800 bbls. The Wilshire Oil Co. also finished a good well during the past week, No. 3 Koontz blowing in under a natural flow making 4,900 bbls. of 34.5 gravity oil daily from the deep Buckbee zone at 5,780 feet. All of the wells finished in this field during the latter part of December are still holding up in good shape, in fact one of this group, The Texas Company's No. 5 Foix, has shown a substantial gain. This well, which blew in doing 1,900 bbls. of oil and 25,000,000 feet of natural gas daily, has built up to around 2,500 bbls. per day. The Texas Company's field department had a battle on their hands when this well blew in and it looked for a time as though it might break loose and get beyond control. Preparations were made to handle a big well previous to its completion and this precautionary work proved a wise move as the tremendous gas pressure blew out a fitting at the end of one of the four lead lines and in an instant a tongue of fire shot out. This lead line was immediately cut out by closing an intermediate gate and the pressure relieved by permitting the well to blow off into the air.

No. 2 Hill, of the St. Helens Petroleum, which showed an initial of 2,650 bbls. of oil and 2,000,000 feet of gas, and the Superior's No. 5 Wardman, which tanked 7,050 bbls. of oil during the first 24 hours, have also been holding up in good shape. Both of these wells were finished in the intermediate Nordstrum zone and while the former came in wet it will be permitted to produce as long as it maintains a satisfactory production as the water is free and can be bled out of the run tank quite readily. George Ring, who wound up 1928 by completing his No. 1 Santa Fe in the deep Buckbee zone doing 2,950 bbls. daily from 5,690 feet, reports a small but consistent gain in production from day to day up to the present time. The Universal Consolidated Oil Co. has re-entered No. 3 O'Connell, which went to water simultaneously with completion of No. 2 on the same lease, and preparations are already under way to correct this difficulty. It is believed that water broke in from No. 2 O'Connell and effectively killed the flow of oil in No. 3, in as much as the former experienced considerable difficulty in effecting a water shut off. The 4¾-inch froze in No. 2 at 5,723 feet and circulation was lost while cementing. This resulted in a wet job in No. 2 and undoubtedly weakened the cement job on No. 3 which had been flowing 4,750 bbls. of clean oil daily previous to the production test on the former.

Dominguez

The Union Oil Co. successfully finished No. 24 Callender, a new well in the Dominguez Field during the early part of the past week, and this project was brought in doing 395 bbls. of clean 31.4 gravity oil daily from 4,259 feet, the hole having been finished with a 6⅝-inch liner carrying 400 feet of 120-mesh screen. The Union should also list a new well in the Huntington Beach Field soon as No. 23 Copeland is drilling in the oil sand at 4,008 feet. Both of the Barnsdall's recent completions in the deep zone at Rosecrans, No. 13 O'Dea and No. 1 Rosecrans, are holding up in good shape and this production should be augmented in the near future by the recompletion of No. 8 O'Dea, which is being redrilled and deepened. The Union is also expected to complete a new well in the Rosecrans Field in the near future as the company is running three strings of tools in addition to Nos. 10 and 11 on the Rosecrans property, which were recently spudded in. The Cypress Petroleum Co. has just landed the oil string in its No. 1 Rosecrans at 6,506 feet and this well is also scheduled for an early test.

Seal Beach

George F. Getty's No. 12, located in the Alamitos Heights town lot area of the Seal Beach Field, failed to come up to expectations on a recent test as the output, 195 bbls. daily, is cutting approximately 50 per cent water. This well, originally carried down to 7,180 feet, was subsequently plugged back to 6,850 feet. The Texas Company and the Western Investment & Title Co. are expected to conclude production tests on their respective deep wells in the Alamitos Heights section shortly and both have a chance of securing commercial production if the oil sand already opened up is any criterion. The Marland spudded in two new wells on the Bixby lease in the older section of the field during the past week and it is quite possible that the company will also make a production test on No. 2 Selover, which has been redrilled and deepened to 5,420 feet. No. 15 Selover is rotating ahead at the present time at 6,672 feet and this well, together with No. 20 on the same lease, have the deep zone as their objective. The Brea Canyon Oil Co., which is working on two potential producers in the Brea Olinda, or Fullerton Field, for the past several months, has been obliged to undertake a redrilling job on No. 44 but should have No. 45 tanking oil in the near future as the bit in this hole is down 5,895 feet at the present time. The next completion in this field should be No. 14 Naranjal of the Union Oil Co. and this project should be followed into completion some time later by No. 18 Orange of the Shell. Drilling operations in the Richfield district have slowed up a little recently, although one or two new wells should be completed in the near future. The Continental Oil Co. is expected to finish No. 2 Richfield Community shortly and it is quite possible that J. A. Nugent and O'Brien and Webber will also chalk up new wells.

Ventura Avenue

Completions in the Ventura Avenue Field during the past several weeks have not been as numerous as heretofore, but a check of development work under way indicates the probable completion of perhaps 25 wells within the next 60 days. These potential producers are scattered throughout the field and it is quite likely that daily production will show an uptrend during this period. The Pacific Western Oil Co., which recently acquired the holdings of the Doheny Petroleum Securities, has several wells nearing completion on the Orton and Willett leases. No. 1 Willett, which has been redrilled and deepened to 7,131 feet, came in a few days ago flowing 472 bbls. initially and this well should be followed into production by No. 4 Willett and No. 11 Orton within the near future. The Shell and Associated are also expected to chalk up a number of completions during the next few weeks. The former, running 16 strings of tools in this field at the present time, was obliged to fortify the rotary mud with hematite last week in order to prevent a premature blowout in No. 24 Edison, located in the Ventura River bed and this well, incidentally, should show substantial production upon completion. The Associated also experienced difficulty with gas during the week as No. 25 Lloyd has been showing considerable gas pressure for some time. The Associated is working on 21 projects in the Ventura Avenue Field at present, one of which, No. 7 Ventura Land & Water, should be listed as an early completion although this well, located in the extreme eastern part of the field, has failed so far to respond to artificial stimulation. The Bolsa Chica Oil Co. is making preparations to recomplete No. 2 Hartman in the deep zone, and this well, located in the northern part of the district, should result in substantial production. Five new wells were spudded in during the past 15 days, the Associated starting No. 67 Lloyd, No. 12-A Hartman and No. 17 Hartman, the Pacific Western Oil Co. No. 14 Orton and the Penn-Kan Oil Co. No. 1 Francis.

Rincon

The Standard concluded drilling operations on the Southern Pacific property at Rincon a few days ago by completing No. 3 pumping 110 bbls. of relatively clean 30.1 gravity oil daily from 3,405 feet. Drilling operations in this field have been retarded for several months pending the completion of the Richfield Oil Co.'s deep zone exploration as it is the general consensus of opinion that further development of the congested area adjacent to the ocean front is unwarranted in view of existing conditions. The Chanslor-Canfield Midway Oil Co. is moving away form the intensely developed area and its next two wells, Nos. 7-B and 8-B on the Hobson lease, will be situated up on the high land where the Richfield Oil Co. completed its No. 1 U. S. during the latter part of November doing 172 bbls. daily from 4,174 feet. Deep zone exploration of the Richfield Oil Co. has not yet been concluded, water trouble having prevented a successful consummation of work on No. 1 Hobson at 6,532 feet. The Richfield's No. 1 fee, the second projected deep zone test undertaken by this company, is rotating ahead in a hard sand streaked with oil sand at 6,470 feet. This well is in good mechanical condition and is expected to determine the potentiality of the lower zone, unless something unforeseen develops. There have been no further developments of importance in the Muscle Rock area, although drilling operations in this section are being watched very closely.

Midway-Sunset

With three wells already drilling in search of the Union's Western Petroleum zone, which was picked up in Section 27-32-23 several weeks ago, and another project, No. 1 Mascot of the Standard, scheduled to get under way within the next few days, it is believed that the potentiality of the Union's horizon will be determined in the near future. The Union, incidentally, resumed drilling in its No. 1 Western Petroleum following an unsuccessful upper zone test, and is rotating ahead at 2,890 feet in a brown shale which is streaked at frequent intervals with oil sand. The Itala Petroleum is also rotating ahead in the brown shale, although this projected deep zone completion has not yet picked up the main oil sand down to the present depth, 2,850 feet. The Cypress Petroleum Co.'s projected deep zone test, located in Section 22-32-23, secured a satisfactory water shut-off several days ago at 1,080 feet and the bit in this hole is rotating ahead at the present time at 1,460 feet. The scope and importance of the sand found by the Union a few weeks ago is still problematical, although the company was sufficiently impressed to lease up adjoining acreage, some of which carried a stiff cash bonus. The Union undertook negotiations with the Mascot Oil Co. but the deep zone underlying this property was subsequently acquired by the Standard. The new wells were finished in the Midway-Sunset Field this week, both of them standing to the credit of the Standard Oil Co. These were No. 92 in Section 29-31-24, which came in pumping 317 bbls. daily from 4,660 feet, and No. 61 in Section 7-32-24, which made 104 bbls. per day when put on the beam at 2,842 feet.

Round Mountain

The Shell finished its third producer

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	.....	.....	.....	.....	.....	428,954
Fuel oil	.....	.....	.....	.....	.....	.....
Diesel and gas oil	.....	.....	78,778	11,254	.....	72,180
Gasoline	590,175	84,311	232,652	33,236	590,175	440,840
Naphtha distillate	.....	.....	.....	.....	.....	.....
Coastwise—						
Crude oil	555,154	79,308	693,588	99,084	555,154	573,629
Fuel oil	229,016	32,717	425,715	60,816	229,016	694,040
Diesel and gas oil	36,037	5,148	.....	.....	36,037	133,243
Gasoline	368,499	52,643	307,764	43,966	368,499	417,197
Kerosene	.....	.....	.....	.....	.....	10,452
Naphtha distillate	.....	.....	.....	.....	.....	30,500
Exports—						
Crude oil	.....	.....	.....	.....	.....	54,100
Fuel oil	264,027	37,718	191,353	27,336	264,027	389,608
Diesel and gas oil	65,140	9,306	55,211	7,877	65,140	61,749
Gasoline	310,997	44,428	.....	.....	310,997	156,499
Kerosene	97,640	13,949	.....	.....	97,640	64,991

TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC, GULF COAST PORTS

Crude oil	.....	.....	.....	.....	.....	.....
Fuel oil	.....	.....	.....	.....	.....	.....
Diesel and gas oil	.....	.....	.....	.....	.....	93,515
Gasoline	77,874	11,125	77,480	11,069	77,874	75,477
Kerosene	.....	.....	.....	.....	.....	.....
Lubricants	.....	.....	.....	.....	.....	.....
Coastwise—						
Fuel oil	.....	.....	209,800	64,257	.....	256,468
Diesel and gas oil	.....	.....	.....	.....	.....	.....
Gasoline	89,072	12,725	115,442	16,492	89,072	75,591
Kerosene	4,280	611	.....	.....	4,280	29,862
Exports—						
Crude oil	.....	.....	.....	.....	.....	.....
Fuel oil	.....	.....	62,383	8,912	.....	134,248
Diesel and gas oil	.....	.....	.....	.....	.....	.....
Gasoline	150,977	21,568	.....	.....	150,977	161,226
Kerosene	.....	.....	.....	.....	.....	.....
Lubricants	.....	.....	.....	.....	.....	.....

on the Freeman lease in the Round Mountain Field of Kern County during the early part of the past week when No. 2 was completed doing 155 bbls. of 19.7 gravity oil daily from 1,750 feet. Development work in this field is progressing very slowly due to the absence of pipe line facilities. Drilling operations in the Mount Poso Field, on the other hand, have been consistently increasing from week to week, although this field is also without distributing facilities and new wells must of necessity be closed in immediately upon completion. The Pacific Western Petroleum Co. completed No. 7 Glide at 1,745 feet a few days ago, but this project, like several others, will remain untested until an outlet is available for any production developed. The Pacific Western is also expected to list No. 8 Glide as a successful completion within the next few days as the 10¾-inch water string has been landed and cemented at 1,621 feet. The Signal Oil & Gas, which has successfully completed three producers in the Mount Poso Field up to the present time, has reached a depth of 2,820 feet in No. 1 McVan, located in Section 14-27-27, and while this project has all the earmarks of a duster, preparations are under way to spud in No. 1 Fitzhugh in the same section.

Northern California Wildcats

The phenomenal production shown by the Barnsdall and Rio Grande's shallow producers in the prolific Elwood Field has greatly stimulated wildcatting activities in Santa Barbara County, and it is quite possible that this increased prospecting work may result in the discovery of one or more new fields in that area before 1929 draws to a close. One of the hottest shots in the entire State at the present time is the potential area located immediately adjacent to the city of Santa Barbara, where leasing activities have been exceptionally brisk during the past few weeks and the results of the several tests to be drilled up on the Santa Barbara mesa should be watched very closely as this district has exceptional merits and may yield another field equally as productive as Elwood Terrace, which is located about 8 or 10 miles to the west. The Shell and Standard have both been doing considerable geological work in Santa Barbara County as a result of the prolific Vaqueros production secured at Elwood. The latter has first call on the Santa Barbara County farm and only recently leased 106 acres of potential oil land from Peverill Meigs. The latter property is located on the mesa land near the city of Santa Barbara and in close proximity to projected test of the Bankline Oil Co., which is expected to get under way shortly. Scott and McIntosh are also making preparations to test out the mesa land lying between Elwood and Santa Barbara and rig material is already on the way.

Practically every major California operator has acquired potential oil land at one or more points in Santa Barbara County. The Standard and Shell are each running two strings of tools in Santa Barbara County at the present time, the former being engaged in prospecting work at Point Arguello and at Point Conception, two geographic prominences located west of the Elwood Field along the coast line. The Shell's two wildcats in Santa Barbara County are located on the Union Sugar property in the Santa Maria area near Guadalupe and at Orella, situated between Elwood and Gaviota. Santa Barbara County has been neglected by prospectors for many years due to the fact that most geologists did not believe that the Vaqueros formation in this vicinity would be found highly productive. The successful achievement of the Barnsdall and Rio Grande Oil companies in opening up the Elwood Field, however, has corrected this erroneous impression and greatly stimulated interest in the possibilities of this area. Wildcatting activities have not yet been extended to any great extent southeast of Santa Barbara, but I am rather inclined to believe that prospecting work during the next several months will extend far down into the Summerland and Carpenteria districts, located between Santa Barbar and Ventura. The Shell holds a number of leases near Summerland and another group around Carpenteria, but no move has yet been undertaken, notwithstanding the fact that these holdings were acquired more than six months ago. The Continental Oil Co. is pioneering prospecting work at Carpenteria where its No. 1 Franklin is down 3,440 feet. The progress in this well has been delayed for the past several days, due to the fact that the rig was pulled in and reconstruction of the derrick has temporarily halted drilling. The Summerland Oil Co. has been working spasmodically on a wildcat at Summerland in Section 33-4-25 for more than a year, this project, No. 1 Becker, being down 3,090 feet at the present time. The Channell Oil Co. has also been drilling a wildcat near Santa Barbara off and on for the past two years, the bit in this hole at the present time being down 6,301 feet.

San Joaquin Basin

The Semitropic and San Emidio districts look to be the most promising areas in the San Joaquin Basin at the present time as favorable indications are present in each district. The Richfield Oil Co. has encountered considerable gas in its No. 1 Kerwin, located on Semitropic Ridge and the crew has been obliged to fortify the drilling mud with hematite in order to keep this project under control. This well has logged several showings since being spudded in and this, together with its favorable geographic location, should command the attention of all operators. The San Emidio area, located in the extreme southwestern end of the San Joaquin Basin, looks especially promising from a geological standpoint, but neither the Standard's No. 1 Kern County at 3,793 feet nor the Union's No. 1 Kern County at 1,408 feet is deep enough to thoroughly test out the possibilities of this section.

The Edison district of Kern County is another area which may bear watching during the course of the next several months. This district may still be classified as wildcat acreage, although the General Petroleum's initial project in this vicinity pumped heavy oil for several weeks at the rate of approximately 100 bbls. daily. I am rather inclined to believe that additional developments will prove the existence of an oil field in this immediate area, although every indication points to an accumulation of heavy oil instead of the highly desirable sweet refining crude which all refiners are seeking. Wildcatting activities in the San Joaquin Valley have been on the increase for more than a year and 1929 will probably witness a further gain in both the number of new projects undertaken and the scope of territory covered. The Angiola Oil Co., owned jointly by The Texas Company, Associated, Standard and Richfield, recently spudded in a wildcat in Tulare County where extensive acreage has been tied up by these four concerns. There is not very much prospecting work under way in Fresno County at the present time and very little under way north of this point, although one of the major companies, the Shell, has been engaged in wildcat exploration in San Mateo and Sonoma Counties for more than a year.

Ventura County, located east and adjacent to Santa Barbara County, has, like the latter, shown a considerable increase in exploration work during the past several months. The Shell and Standard are both engaged in exploration work in this vicinity at the present time, the former drilling one well on the Marr property near Simi and the latter a wildcat in the Saticoy citrus district, where eight preliminary structure survey holes were drilled previous to locating the present deep test. San Luis Obispo County has not yet shown any appreciable increase in wildcat exploration, work in this area being more or less of a sporadic nature and limited to a few restricted areas. The Union Oil Co. is the only one of the major operators which is actively testing out acreage in this county at the present time. This concern is running two strings of tools in the Huasna area where geological conditions are favorable for the accumulation of oil on two new structures. There are quite a number of smaller operators engaged in exploration work throughout San Luis Obispo County, but many of these projects are doomed to disappointment due to unfavorable conditions.

Southern California Wildcats

Wildcatting activities in southern California, although restricted in scope, offer several possibilities for the discovery of one or more new fields. This exploration work is very selective, due to the limited number of areas which may be considered favorable. The Associated, Rio Grande and Empire Drilling Co. are actively exploring the section around Downey and Bandini, but none of this trio has logged any showings of special importance up to the present time. The Continental Oil Co.'s No. 1 McNally at La Mirada, which, like the tests being drilled in the Bandini and Downey districts, is based on the possibility of encountering a continuation of the prolific Santa Fe Springs Field, showed favorable gas showings recently, and while this would ordinarily be considered of unusual importance, the well in question is getting quite deep and can not be considered especially encouraging. The Texas Company is drilling a wildcat in the Garden Grove section near Anaheim in Orange County, where there is a possibility of opening up a new field although a number of previous tests in this vicinity have been unproductive of satisfactory results.

The California Eastern Oil Co. cored 25 feet of oil sand in its No. 1 Wickham, located in Hazley Canyon, Section 5-4-17. This project, which is located close to the Los Angeles and Ventura County lines, is scheduled for a production test within the next day or two, the oil sand having been countered at 2,860 feet. The Richfield Oil Co. recently spudded in what appears to be a rather favorably located wildcat in the Vernon or Maywood section of Los Angeles County. The bit in this hole was down 1,929 feet a few days ago and, judging by the progress made up to the present time, the critical stage should be reached within the next several weeks. The Richfield Oil Co. is also engaged in wildcat exploration work in the Puente district, but this is generally considered a rather wild shot, although it of course has possibilities.

OKLAHOMA FIELDS

(Continued from Page 44)

No. 6 Lindley, NW cor. SW SE, Section 18-8-5.

Skelly Oil Co. and Margay Oil Co.'s cellar is dug for No. 2 Linger, NW cor. NE, Section 18-8-5. Independent Oil & Gas Co. is building the rig for No. 5 Harding, NW cor. SE NW, Section 18-8-5. Gypsy Oil Co. has dug the cellar for No. 5 Miller, NE cor. SE SE, Section 18-8-5.

Pure Oil Co.'s No. 1 Lindley, SE cor. SW SE, Section 18-8-5 Maud Pool, made 2,563 bbls. from Misner sand at 4,098-4,115 feet. No. 2 Lindley, SW cor. SE, Section 18-8-5, was completed for 2,300 bbls. in Hunton lime at 4,124-40 feet. Pure Oil Co.'s No. 3 Lindley, NW cor. SE, Section 18-8-5, flowed 2,603 bbls. from Misner sand at 4,074-95 feet.

Sinclair Oil & Gas Co.'s No. 2 Bellars, NW cor. NE NE, Section 19-8-5, was completed for 2,455 bbls. in Misner sand at 4,128-48 feet. Shaffer Oil & Gas Co.'s No. 1 Cherry, NE cor. SE SE, Section 23-7-4 St. Louis Pool, flowed 2,305 bbls. from Wilcox sand at 4,185-4,226 feet. McCulloch Oil Co. and others' No. 4 Smith, NW cor. SW SE, Section 25-7-4, swabbed 350 bbls. from Simpson sand at 4,195-4,205 feet. No. 5 Smith, SE cor. NW SE, Section 25-7-4, was completed for 100 bbls. in Simpson sand at 4,195-4,237 feet.

Sinclair Oil & Gas Co.'s No. 1 Gilbreath, NW cor. SE SE, Section 25-7-4, Made 607 bbls. from Simpson sand at 4,217 feet after plugging back from 4,316 feet in Wilcox sand. No. 2 Neeley "B," NE cor. SE SW, Section 25-7-4, drilled to 4,210 feet in Simpson sand and plugged back to 4,207 feet and swabbed 305 bbls. Gypsy Oil Co.'s No. 3 Dodson, SE cor. NE SE, Section 26-7-4, made 500 bbls. from Simpson sand at 4,225-64 feet.

Pure Oil Co.'s No. 1 Dodson, NE cor. SE SE, Section 26-7-4, was completed for 135 bbls. at 4,312 feet in Simpson sand. Champlin Oil & Refining Co.'s No. 1 Harber, SW cor. NE SW, Section 14-7-5, is dry and abandoned at 4,424 feet. T. B. Slick's No. 1-W Davis, SW cor. NW NE, Section 18-7-5, flowed 5,662 bbls. from Wilcox sand at 4,102-08 feet. Magnolia Petroleum Co.'s No. 2 Tull Fyke "B," NE cor. SE, Section 20-7-5, pumped 30 bbls. from Simpson sand at 4,380 feet after plugging back from Wilcox sand. No. 2 C. Youts, SW cor. SE SW, Section 20-7-5, made 1,180 bbls. from Simpson sand at 4,515 feet.

Shell Petroleum Corp.'s No. 1 Youts, NW cor. SW, Section 28-7-5, swabbed 61 bbls. from Simpson sand at 4,225-4,351 feet. Mid-Kansas Oil & Gas Co.'s No. 3 Lunay, SW cor. NW NW, Section 30-7-5, is dry and abandoned at 4,501 feet. No. 4 Lunay, SE cor. NW NW, Section 30-7-5, was completed for 345 bbls. in Simpson sand at 4,082-4,175 feet. The Texas Company's No. 1 Zoeller, NW cor. SW SE, Section 30-7-5, has been abandoned at 4,276 feet. Twin State Oil & Gas Co.'s No. 1 Sexton, NW cor. Section 32-7-5, is a dry hole at 4,452 feet in Wilcox sand.

Seminole County

Magnolia Petroleum Co. made location for No. 1 fee, SW cor. NW NE, Section 11-8-5, Mission Pool. Carter Oil Co. is building the rig for No. 1 Eleck, C SW SE, Section 23-7-6, Little River Pool. The Texas Company's No. 1 Dindy, SW cor. NE SW, Section 24-7-6, is a location. Louisiana Oil Refining Corp.'s No. 2 Statler, SW cor. SE SW, Section 7-5-8 Allen Pool, is drilling deeper at 2,990 feet.

Independent Oil & Gas Co.'s No. 4 R. Davis, NE cor. SW SW, Section 13-7-6 Little River Pool, was completed for 955 bbls. in Wilcox sand at 4,305-17 feet. The Texas Company's No. 1 Hotulke, NE cor. SE SE, Section 22-7-6, made 558 bbls. from Wilcox sand at 4,183-90 feet. Gypsy Oil Co.'s No. 7 Cotcha, SW cor. NE SW, Section 23-7-6, was completed for 955 bbls. in Wilcox sand at 4,572-80 feet. Carter Oil Co.'s No. 4 Larney, SE cor. NW NW, Section 24-17-6, made 1,129 bbls. from Wilcox sand at 4,295-4,308 feet. Gilcrease Oil Co.'s No. 1 Reed, NE cor. SW SW, Section 18-5-8, made 70 bbls. from Cromwell sand at 2,676 feet.

Wagoner County

McCracken and others' No. 7 Childers, NW cor. NE SE, Section 21-18-17, is spudding. Harner and others' No. 1 Irving, NW cor. SE, Section 22-18-17, is spudding. H. T. Ingram's No. 1 Lowery, SE cor. SW SE, Section 30-16-16, is drilling at 125 feet. Chicago Drilling Syndicate's No. 1 Barnes, C NW NE, Section 13-16-17, has been abandoned at 1,127 feet.

LOUISIANA-ARKANSAS

(Continued from Page 49)

Simms Oil Co. set whipstock at 2,620 feet on No. 11 Hildebrant, Section 33-15-15, after failing to catch a fish (liner) total depth 2,746 feet in attempting a workover.

Nevada County

Humble Oil & Refining Co.'s No. 1-D Groves, Section 6-14-20, is waiting on standard rig to pump from 3 feet of sand, total depth 1,158 feet; No. 2 Hein, Section 1-14-21. is drilling at 1,500 feet.

Union County

El Dorado, East Side—Gulf Refining Co. has rigged up for No. 2 Gaddy, 200 feet south and east NW cor. NE SE, Section 30-17-14, and is washing to bottom on No. 1 T. J. Woodley, formerly T. J. Woodley's No. 2 Townsend, Section 6-18-14, abandoned as a salt water hole at 3,143 feet.

Champagnolle — O. W. Estes set 42 feet of 10-inch surface casing on No. 1 Alice Gregory, Section 15-17-14, and is drilling at 1,520 feet. J. W. Hooser's No. 4 Slade, Section 3-17-14, is drilling at 2,817 feet. H. L. Hunt tested sand from 2,634-39 feet on No. 6 J. D. Gregory, Section 15-17-14, got 1,500 feet of salt water in the hole and is coring at 2,800 feet. E. C. Johnson, trustee, rigged up No. 3 E. F. Gregory, Section 10-17-14, set 10-inch at 125 feet and is drilling at 1,990 feet.

Lion Oil Refining Co. tested salt water at 3,283 feet and again at 3,368 feet on No. 5 Union Sawmill, Section 7-17-

13, and is drilling at 3,435 feet. Magnolia Petroleum Co. has derrick up for No. 3 Alice Gregory in the SE cor. NW SE, Section 15-17-14. Marine Oil Co. is drilling No. 2 Sample, Section 7-17-13, at 2,610 feet. Ohio Oil Co.'s No. 2 Alphin, Section 7-17-13, is bailing for a test, total depth 2,058 feet; No. 3 Carroll heirs, Section 6-17-13, is drilling at 1,502 feet; No. 4 Nash, Account 1, Section 6-17-13, cemented 6⅝-inch at 3,005 feet with the bottom 3 feet lower, and No. 3 Nash, Account 3, in the same section, is sidetracking a lost drill stem, total depth 2,935 feet; No. 1 L. L. Ward, Section 15-17-14, cased off a flow of salt water with some oil at 2,614-20 feet with 6⅝-inch cemented at 2,748 feet, total depth 2,755 feet. Oilwell Corp. is coring No. 2-A Kelly, Section 9-17-14, at 3,240 feet after a salt water test at 2,891 feet. Olson Brothers set 140 feet of 10-inch and are drilling at 2,260 feet on No. 1 M. S. Kelly, Section 9-17-14.

Pure Oil Co. made a drill stem test on No. 6 W. E. Gregory estate, Section 15-17-14, at 2,635-40 feet and got 10 fourbles of water and is coring at 2,886 feet; No. 1 Nash, Section 7-17-13, is drilling at 2,930 feet. Rovenger Oil Corp.'s No. 1-B Perdue, Section 9-17-14, tested 10,000,000 feet of dry gas at 2,802 feet and cemented 6⅝-inch casing at 2,773 feet for a standard test. Rushing and others' No. 7 Gregory, Section 11-17-14, is drilling at 2,960 feet. Skelly Oil Co. killed No. 1 J. M. Gregory in Section 15-17-14, and deepening, is drilling at 3,170 feet.

East Texas

Harrison County

Nick Barbare's No. 4 A-2 Furrh, in the James Short Survey, is drilling at 2,300 feet.

Panola County

S. E. Davidson and others' No. 1 Johns, in the W. H. Wooley Survey, is shut down at 2,060 feet. Eureka Natural Gas Co.'s No. 1 Becknell, in the Elijah Williams Survey, is shut down at 1,500 feet. S. H. Gardner made location in the B. C. Jordan Survey for No. 4 G. E. Brumble, set 10-inch at 60 feet, 8-inch at 958 feet and 6-inch at 2,585 feet. Magnolia Petroleum Co.'s No. 1 J. C. Shehas, in the James Asher Survey, tested 1,100 feet of salt water and is shut down for orders, total depth 2,808 feet. Magnolia Petroleum Co. cemented 4½-inch casing at 2,440 feet in No. 2 Steele, in the B. C. Jordan Survey, and is drilling sandy shale at 2,188 feet on No. 13 Steele, an old hole being deepened from 996 feet. Natural Gas Producing Co.'s No. 3 Roquemore, B. C. Jordan Survey, is waiting orders after a test of 1,000,000 feet of gas at 2,635 feet.

LA.-ARK. WILDCATS

(Continued from Page 49)

its completion more than a month ago, flowing 50 bbls. through 2½-inch tubing to start with and growing to an average of 56 bbls., has prompted skirmishing in that vicinity on the part of outsiders. Those of the Shreveport organization who already had protection do not seem to be wildly excited over the prospects and most of the play has been in royalties with more or less leasing on the part of individuals and strangers to this district. The largest trade recorded so far, for instance, after Gay took 5,000 acres of Long-Bell Lumber Co. stuff north and west of his original block was the purchase of 2,500 acres of the Sabine Lumber Co.'s holdings east of the discovery well at $25 per acre and a well which is already well under way. Gay has made a location on his Long-Bell tract in the NW cor. SE NW, Section 26-8-14. While it is only 4 miles north of the discovery well he had to haul his rig 30 miles in order to get to it. He is drilling No. 1 Sabine Lumber Co. in Section 13-7-14, around 500 feet with surface pipe set at 102 feet and has rig up for No. 3 Bowman-Hicks in ection 14.

Nothing further is heard of the show reported from Chidester and others' No. 3 Lewis in Section 12-15-5, Hinds County, Mississippi. After bailing a barrel of oil with lots of salt water from 918-23 feet they cemented 6⅝-inch. The oil is rather dead looking stuff and one report has it that it resembles the stuff Tunica Petroleum Co. got in its three small wells in the Jackson and Sulphur Springs district of LaSalle Parish, 20 miles southeast of Urania.

Atlantic Oil Producing Co., drilling No. 1 Houston in Section 30-11-6, Sharkey County, on joint account with The Texas Company, ran into a heavy flow of surface water at 40 feet and set a couple of joints of 20-inch as conductor to get through it. The company figures on getting 12½-inch at around 800 feet.

Second Well Abandoned

Two or three weeks ago W. G. Doerne, who has been doing some deep drilling independently of outside assistance, abandoned No. 1 Pickering in Section 17-4-11, Sabine Parish, at 4,325 feet, and this week he abandoned No. 1 Bollinger in Section 9-22-11, Bossier Parish, when he cored rock salt at 4,320 feet. He had drilled the Bollinger to 3,900 feet without getting anything to warrant a test when he started the Pickering and while drilling the latter paid some attention, making a few feet of hole from time to time, on the latter until he hit the salt at 4,304-13 feet last June and shut down. After he finished the Pickering he took another whirl on the Bossier prospect but gave it up when another core last week showed the same rock salt. He put a lot of money into two dry holes and got nothing for it except some valuable and expensive information and experience. Both holes were carefully drilled and as carefully cased.

R. O. Roy abandoned No. 1 Whitaker in Section 5-13-13, about a mile east of his 20,000,000-foot gasser on the Fuller land completed at 2,827 feet. He had drilled to 2,500 feet, got nothing and abandoned it before completing No. 1 Fuller and then when this latter came in went back to it, drilled to 2,834 feet where he got a small show of gas and went on to 2,950 feet without improving the situation any. Its value is to show where not to drill on the western side of his 13,000-acre black.

Morefield and Tate, having two near successes to their credit in the Lawson-Urbana district of Union County, Arkansas, 8 miles south of Champagnolle, abandoned their third attempt in the once promising part of the country, No. 1 Smith in Section 6-18-13, dry at 3,302 feet. Two years ago they got enough oil in two tests to keep interest alive in that locality but not enough to make a commercial well, all they got out of them being the satisfaction of furnishing some of the red bed information that led to Champagnolle. Last May C. F. Noble of Tulsa blocked some stuff south of Smackover and planned a deep test, made his location on the Murphy land in Section 36-16-16, and put up a derrick. It has been abandoned.

North Louisiana

Bienville Parish

W. G. Gray's No. 1 Johnson, Section 21-18-6, is drilling chalk rock at 2,635 feet and W. P. Wallace and others are arranging to make a test on No. 1 Ashley, Section 15-16-10, at 2,005 feet.

Bossier Parish

Arkansas Natural Gas Co.'s test on a block of 1,500 acres surveyed and recommended by H. N. Spofford, No. 1 Tidwell in Section 29-22-11, 10 miles southeast of Cartersville, is arranging to set surface casing. Nell & Lanier have rig up for No. 1 Biedenharm in the SE cor. Section 23-21-14, across Red River from the Pine Island district of Caddo Parish.

Caddo Parish

D. C. R. Oil Co. has rig up for No. 1 Hunter estate in Section 17-19-14. Woodley Petroleum Co.'s No. 3 Whitehurst, in Section 34-16-12, tested 250,000 feet of gas at 2,431 feet and is waiting orders.

Claiborne Parish

Dixie Oil Co.'s No. 1 Gilbert, Section 27-21-5, is shut down at 4,517 feet, contract depth.

DeSoto Parish

Warren & Carruthers' No. 1 Ramsey, Section 33-13-16, is drilling at 2,482 feet.

East Carroll

Palmer Corp.'s No. 1 Mitchner, Section 8-19-11, is on a rock at 1,820 feet.

Monroe District

Morehouse Parish—Woodley & Collins have rig up to drill No. 1 Harp, Section 23-22-7.

Ouachita Parish—Phillips Petroleum Co.'s No. 1 School fee, Section 16-16-4, is on a hard rock at 2,650 feet.

Sabine Parish

W. J. Garnier's No. 1 Bowman-Hicks, Section 16-7-12, is shut down at 700 feet. R. L. Gay set 12½-inch at 102 feet and is drilling at 300 feet on No. 1 Sabine Lumber Co. and has location in the NW cor. SE NW, Section 26-8-14, for No. 1 Long-Bell Lumber Co., 4 miles north of his producer, No. 2 Bowman-Hicks, in Section 14-7-14.

Richland Parish

Richland Operating Co. cemented 8-inch casing on No. 1 Chapman, Section 19-16-7, at 849 feet.

Arkansas

Bradley County

Ohio Oil Co. is drilling No. 1 Southern Timber Co., Section 19-16-9, at 2,136 feet.

Calhoun County

Joe Hurley is arranging to make a test of 10 feet of sand on No. 1 Arkansas Timber Co., Section 29-16-12, total depth 2,314 feet.

Miller County

E. A. Martin's No. 4 Dale, Section 23-15-26, is drilling at 2,700 feet.

Ouachita County

J. E. Crosbie cemented 6⅝-inch at 1,908 feet on No. 1 Canada, Section 24-15-16, and has derrick up for No. 2 across the same "40." McDonald Brothers are fishing for junk in No. 1 Wilson, Section 25-15-18, total depth 2,808 feet.

Union County

D. Frazier, trustee, has derrick up for No. 1 F. R. Laney, 200 feet south and east of the center of Section 30-19-16.

Champagnolle—Magna Producing Co.'s No. 2 El Dorado Realty Co., Section 8-17-13, is drilling at 3,117 feet.

East Texas

Red River County

Shad Harper cemented 6-inch at 1,575 feet on No. 1 Garland in the Joseph Wagley Survey.

Shelby County

Chapparall Oil Co.'s No. 2 Holt, in the Matthew Moore Survey, is shut down at 2,707 feet. Gulf Refining Co. is reaming to set 12½-inch on No. 1 Carraway, Aaron Castleberry Survey, total depth 550 feet.

Mississippi

Monroe County

Arkansas Natural Gas Corp.'s No. 1 Rye, Section 22-13-7, is reaming at 2,600 feet, total depth 2,724 feet.

Sharkey County

Atlantic Oil Producing Co. cemented 40 feet of 20-inch pipe on No. 1 Houston, Section 12-15-5, as a conductor to cut off surface water.

Tennessee

Decatur County

Chester County Oil & Gas Co.'s No. 1 Montgomery, 7 miles southwest of Decatursville, is drilling at 500 feet. Standard Oil Co. of Louisiana's No. 1 Wyatt, 3 miles south of Decatursville, set 44 feet of 10-inch to case off surface water and is drilling at around 65 feet.

Madison County

Semte Oil Co.'s No. 1 Jodey Howard, 9 miles north of Jackson, is drilling at around 350 feet.

ROCKY MOUNTAIN AREA

(Continued from Page 53)

10-4-91, is still tied up, this time fishing for an underreamer lug. This well has had bad luck almost from the time an effort was started to deepen it to the Sundance.

Wildcat in Pueblo County

A wildcat which has not heretofore been reported in the Rozella Oil Co.'s No. 1 Shaw, SE NW NW, Section 3-22s-63, in Pueblo County, 13 miles southeast of Pueblo. H. C. Courtney and associates are behind the operation. It was spudded in early in 1928 and is shut down temporarily at 900 feet. The first objective is expected at 1,175 feet.

The High Line Oil Syndicate has been formed by J. W. Ady of Colorado Springs, and associates to complete the No. 1 Peerless, NE cor., Section 23-8s-104, on the High Line Dome in Mesa County. This well was drilled to 2,058 feet some time ago and had good showings in the Frontier. The new interests are moving in standard equipment to replace the rotary which was used to drill to the present depth.

In Routt County, the Hynds Oil Co.'s No. 2 State, SW NW, Section 17-6n-86, on the Tow Creek Dome, is drilling at 3,110 feet and has fairly good shows of both oil and gas. This is the only operation on the structure outside of the Texas Production Co.'s wells. The latter's No. 4 Belle Dennis, NE SE, Section 7-6-86, is fishing at 3,957 feet, and its No. 1 State Oliver, NE SW, Section 18-6-86, is being tubed for a test at 3,165 feet. It was recently completed as a 10-bbl. well at that depth. Upon cleaning out and agitating, it commenced to show up much better and another test of production was decided upon.

Wyoming

Producers in the Salt Creek Field were notified by the mineral leasing division of the United States Geological Survey of the Department of the Interior to commence delivering the Government's royalty oil to The Texas Company and the White Eagle Oil & Refining Co. at midnight on December 31 in accordance with the recent tentative acceptance of these two companies' joint bid of 21¾ cents premium at a private sale following the rejection of bids submitted on December 10. The Midwest Refining Co. is temporarily gathering the oil in its lines and storing it until the various interests work out a plan with the Government's representatives for handling the oil.

Representatives of the successful bidders were reported in Casper this week negotiating with the Midwest, Empire State Oil Co., the New York Oil Co. and the Producers & Refiners Corp. for permanent facilities for handling the royalty oil during the three years in which the contract is to run. The various interests are showing a disposition to cooperate and no serious difficulty in working out an arrangement is expected. When the Sinclair Crude Oil Purchasing Co.'s contract was canceled last October, the producers began paying the royalty in cash, the Midwest running the oil into storage until the situation was cleared up.

The old Alliance Oil & Refining Co.'s refinery at Thermopolis, built several years ago by the Singer interests to operate on crude from the Warm Springs Field, owned by affiliated interests, is being moved to the Pedro district in northeastern Wyoming to operate on crude from a new pool recently opened by B. V. Hole and associates in Section 7-46-63. This firm has eight producing wells which make from 3 to 10 bbls. of 26 gravity oil each at a depth of 400 feet. The refinery was owned by the Mere Oil Co. with W. B. Channell in charge, which will retain site and loading and storing facilities at Thermopolis. The Warm Springs crude is being sold to the White Eagle Oil & Refining Co. and shipped to Casper.

No Wyoming Completions

There were no completions reported for the week in Wyoming. The Ohio Oil Co.'s No. 1 Pulley, Section 27-53-101, on the Shoshone anticline near Cody, in Park County, which gave promise of opening a new pool only to encounter water after having 3,500 feet of oil standing in the hole, is not expected to develop much of interest for a few weeks. It topped the Embar at 4,752 feet and ran into water at 4,780 feet. A lead plug is being run to shut off the bottom water and make a test. The last string of casing run was 4¾-inch so there is no prospect for the hole being carried down to the Tensleep which was not tested in this well but is the big producing horizon at Oregon Basin. The Ohio is building rig for another well on the same section to be known as No. 1 Pulley, Account 3, which will soon be drilling.

The Oregon-Wyoming Oil Co.'s No. 1, NE SW, Section 30-52-101, on the Horse Center Dome in Park County, is running casing at 1,030 feet. This well is reported to have had several shows of oil, but not in commercial quantities. The next horizon is the Tensleep and below this is the Amsden, both to be drilled

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(Patented Sept. 14, 1926)

As a leading manufacturer of Automatic Specialties, The Fisher Governor Company presents this patented Ball Bearing Type of Liquid Level Controller as another new and original development. Our experience in building the majority of the liquid level controllers installed and in use today, has been advantageously used in the design and development of this device. The approval and acceptance of the Type No. 232 by leading engineers and its satisfactory performance in service has shown it to be worthy of our efforts and entitled to a place in the famous FISHER line.

Ball bearings of both the thrust and radial types are used in this controller to reduce the friction to an absolute minimum. In addition to reducing the friction, these bearings keep the rotating stems in perfect alignment. By eliminating the friction, it is possible to utilize all of the power developed by the float for operating the lever valve. Besides the bearings used with the float cage stem or shaft, similar bearings are used with the rotating stem of the lever valve. The bearings absorb the unbalanced pressure thrust on the two stems and permit their frictionless rotary movement. Until our development of this design, it was not possible to secure such positive control and operation as is now obtained with the Type No. 232. Standard greasing connections, felt washers, and external construction provide these bearings with suitable lubrication and protection from grit, rust, water, and corrosion. To meet all existing service conditions, we are able to furnish several styles of bearing assemblies and construction. These styles consist of two internal bearings, one internal bearing, one internal and one external bearing, one external bearing, and two external bearings.

The float cages and lever valves are built suitable for gas, hot or cold oil, steam, hot or cold water, and other fluids, and for a range of working pressures from 125 lbs. to 400 lbs. With proper trimmings and floats for maximum temperatures to 750° F. and for corrosive service.

A complete description of the Type No. 232 Fisher Liquid Level Controller is contained in Bulletin 32—write for a copy.

Illustrating one of the many typical installations of Fisher Liquid Level Controllers Type No. 227-A. Fisher Liquid Level Controllers have a wide range of usefulness and are constructed of various materials adapting them for service under all pressures and temperatures.

Fisher Liquid Level Controllers are built in the direct connected type such as the 227-A and 232 and are fully described in Bulletin 31. They are also built in the remote operated type No. 240 which provides for the placing of the valve and float cages at wide distances apart and controlling their actions by means of unique remote transmission elements. These remote controllers are fully described in Bulletin No. 35.

in this test. The Producers & Refiners Corp.'s No. 1, SE NW, Section 7-57-97, on the Sage Creek Dome, is bottomed in sand at 1,393 feet and is underreaming the 10-inch at 1,338 feet. The California Exploration Co.'s No. 2, NW NE, Section 14-48-102, on the Pitchfork Dome, joint with Producers & Refiners, is standing cemented at 225 feet where the 20-inch was set.

Oregon Basin Field

In the Oregon Basin Field the Producers & Refiners' No. 1, Section 19-52-100, is running 15½-inch at 563 feet, and the Enalpac Oil & Gas Co.'s No. 2 Cactus, SE cor., Section 6-51-100, cemented the 6⅝-inch at 3,171 feet and is about ready to resume. The Ohio's No. 1 Sonners, Account 3, SE Section 8-51-100, is drilling at 3,695 feet.

In Big Horn County, the Prairie Oil & Gas Co.'s No. 1 Chilcote, Section 35-56-95, Little Sheep Mountain structure, is drilling at 1,715 feet in the Deadwood formation and about due to pick up the sand. The gas found at the top of this horizon was only a pocket. This test is being observed as it is the first to the objective horizon in the Big Horn Basin. The Producers & Refiners' No. 3, NW NW, Section 24-56-98, on the Garland Dome, is about ready to resume at 2,708 feet after changing over from cable to rotary tools to get through a bad formation and the underlying gas sands, and the Utah Southern Oil Co.'s No. 3, NE SW, Section 29-56-97, on the same structure, is waiting for the cement to harden. The 5⅜-inch was cemented at 3,317 feet preliminary to bailing the mud and making a test.

The Carter Oil Co.'s State well in SW SW, Section 16-48-82, on the Billy Creek Dome in Johnson County, is drilling at 1,600 feet with rotary and making fast time.

Going to Deeper Horizons

In Fremont County, the Producers & Refiners' No. 7, C SW NW, Section 14-32-95, Sand Draw, which came in for 65,000,000 feet of gas at 2,917 feet, is rigging up lubricator, the intention being to go on down to the deeper horizons if possible. The same company's No. 2, Section 9-32-95, is still shut down at 3,642 feet.

The Prairie Oil & Gas Co.'s No. 1 Tucker, Section 18-13-99, on the Alkali Creek structure in Sweetwater County, is bottomed at 2,480 feet and underreaming the 8¼-inch. The Union Oil Co. of California's No. 1 Herrick, NE SE, Section 1-16-76, Little Laramie Dome in Albany County, is drilling at 2,211 feet.

In Carbon County the Producers & Refiners' No. 7, Section 7-26-89, on the Wertz Dome, is drilling up bailer at 3,504 feet, and its No. 8 on the same section, is shut down at 3,718 feet at which depth it was making 69,000,000 feet of gas before being shut in. Same company's No. 3, Section 2-19-88, on the Hatfield Dome, is shut down at 4,003 feet, and its Sherrard Dome test in Section 14-25-89, is bottomed at 2,945 feet and underreaming at 2,930 feet.

In Sublet County, the California Co.'s No. 1 Wyss, NE SW, Section 12-32-115, on the South Cottonwood Dome, is drilling at 1,085 feet in red and green shale, and its No. 1 Bushell, SW SE, Section 11-29-115, Snyder Basin, is running core barrel at 2,503 feet total depth.

Montana

Two wells were completed in the Pondera Field the past week. The Midwest Refining Co.'s No. 4 on the NE of Section 16-27-4 reports a 200-bbl. production, while the Rice-Burke Pondera Valley State Bank's No. 8 on the NW of Section 15-27-4 will make from 75 to 100 bbls. Two more wells should be completed within a few days, the Ohio Oil Co.'s No. 2 Monson on Section 22-27-4 and the Ponting Rice's No. 5 State on Section 16-27-4. The Pondera Field was visited by a 6-inch snowfall which did not appear to hamper operations in the field. Work is progressing on the new oil line of the Pondera Pipe Line Co., a group of independent operators who are laying a line to Conrad. Most of the gathering system has been completed and pipe is being strung for the main line. A crew is also working on the spur from the main track of the Great Northern, on the outskirts of Conrad, to the tank farm site.

Reports of water intrusion in the Pondera wells have been current in Montana, and these are emphatically denied by operators in the field. Some of the wells have shown water since their completion, which is a normal condition in a limestone field, but the amount is small and gathers in the bottom of the tanks, where it can be readily drained off. The larger wells in the northwestern part of the field have shown no water.

The Advance Oil Co.'s No. 1 Kitchen, Section 2-34-1, Kevin Sunburst Field, has recovered lost tools and is drilling ahead from 4,596 feet. This is the deepest hole ever drilled in the Kevin area, and is being watched with considerable interest as it has reported showings of oil below the horizons which yield the field production. Another interesting well in the Kevin Sunburst Field is the Munger Maloney's No. 1 on Section 5-34-1, which reports 1,000 feet of oil in the hole. This well is fishing, the tools having been lost when the hole bridged 40 feet of bottom. The Munger well is near the Barger wells which created something of a sensation a year or more ago, and it is hoped the definite boundary of the Baker Pool in that direction may be established.

The Trench Oil Co. has shut down at its No. 2 location on the west side of the Cat Creek Field and will do more work at this time. Drilling was suspended at 1,400 feet with the bit in the top of the first Cat Creek sand. The Carroll Brothers test on the Cedar Dome, east of production in the Cat Creek area, has been delayed by a gas explosion which did considerable damage and injured one of the crew.

ROCKY MOUNTAIN PRODUCTION
Daily Average Runs Week Ended January 5

WYOMING	
Salt Creek	35,860
Big Muddy	2,450
Grass Creek	2,380
Elk Basin	920
Frannie	300
Ferris	20
Rock River	2,470
Lance Creek	340
La Barge	2,900
Poison Spider	1,480
Oregon Basin	2,890
Osage	450
Lander	430
Byron	30
Lost Soldier	3,710
Simpson Ridge	70
Dutton Creek	50
Rex Lake	140
Hamilton Dome	720
Total Wyoming	57,610
MONTANA	
Cat Creek	1,520
Kevin-Sunburst	7,090
Pondera	790
Total Montana	9,400
COLORADO	
Florence	1,354
Moffat	1,145
Fort Collins	2,515
Iles Dome	1,762
Rangely	100
Tow Creek	578
Boulder	25
Total Colorado	7,479
NEW MEXICO	
Rattlesnake	1,909
Hogback	520
Artesia	1,065
Cap Rock	119
Total New Mexico	3,613
Total Rocky Mountain	78,102

MEETING OF SOUTHWEST DIVISION NATURAL GAS

(Continued from Page 31)

Address—R. J. Daugherty, Bartlesville, Okla.

Paper—"Development of Sales of Industrial Gas and the Rate Necessary to Obtain the Business," H. C. Meade, New Orleans Public Service, Inc.

Discussion.

"Review of Open Flow by Pressure Methods," H. C. Rawlins, United States Bureau of Mines.

Discussion.

"Gas Company Advertising," Miss Lois Upshaw, Dallas Gas Co.

Luncheon 12:30.

2:00—Question box. Those having questions they would like to hear discussed are requested to present them to the chairman as early as possible.

6:30—Barbecue at fair grounds and wrestling match proffered by Shreveport gas companies.

January 15

9:30—"Ideal Distribution System for Committees of 250 to 1,500 Meters," C. L. May, Community Natural Gas Co.

"Proper Classification of Accounts for Natural Gas Producing, Pipe Line and Distributing Companies," Joe Zeppa, Arkansas Natural Gas Corp., Shreveport.

"Proper Casing and Tubing of Wells," H. C. Otis, Arkansas Natural Gas Corp., Shreveport.

2:00—The afternoon session will be a joint meeting with the Louisiana section of the American Society of Mechanical Engineers.

"Economic Problems of High Pressure Gas Transmission," P. McDonald Biddeson, Monroe, La.

Moving picture showing process of manufacturing seamless line pipe—National Tube Co.

Question box. Business session. Adjournment.

North Louisiana Gas

The history of north Louisiana's development as one of the principal natural gas producing sections of the country is full of interest and presents, at times, an industrial romance. Natural gas was

H. C. Morris

first piped from the first field in the State, Caddo, to the first city, Shreveport, in 1906 shortly after the Savage Brothers tapped the great Caddo oil field at what is now Oil City. In 1910 Benedum & Trees who had made a fortune in the new field, operating as the Arkansas Natural Gas Co., built a 200-mile 16, 18 and 20-inch line to Little Rock and Hot Springs and by 1915 a network of feeder lines extended all over Caddo Parish, the system being augmented and extended as gas was discovered in the Elm Grove district of Bossier Parish and in Panola County, Texas.

In 1916 and 1917 came the discovery well in the Monroe Field which since has been extended to embrace an area of 350 square miles or more. In 1920 S. C. Fullilove of Shreveport, Simms Oil Co. and other individual and corporate operators opened the Shongaloo district of Webster Parish which was followed by the Sarepta district further west in the same parish. Cotton Valley oil field was the sequel to gas development in the Sarepta district in 1924 and 1925 commercial gas was found at Waskom in Harrison County, Texas, and Pine Island, where three horizons were producing oil, produced a fourth at a still lower level, the initial well, of 45,000,000 feet open flow capacity having pressure sufficient to put gas into Little Rock and Hot Springs without necessity of operating the compressor station on the Arkansas Natural Gas Co.'s line.

The Southern Carbon Co. built the first gas line out of the Monroe Field, 8-inch, to Alexandria, La. In 1923 and prior to that the southern part of the State had produced a gas field of its own in Terrebonne Parish which supplied Houma and several other nearby towns. Mansfield likewise had been supplied [illegible] from the nearby Naborton oil and [illegible] field and a line had been laid to Natchitoches, La., Marshall and other nearby towns in East Texas from the Carthage Field.

Gas Pipe Line Development

Pipe line development in major proportions began in 1925 when Magnolia Gas Co. built a 22-inch welded line from the Waskom Field to its refinery at Beaumont, Tex., at that time the longest welded line in existence, 217 miles. This was soon extended to the Spring Hill and Shongaloo districts of Webster Parish and when the Cartersville gas field in Bossier Parish, a few miles west of the Sarepta district, was opened in 1926 a tap was laid to take some of this gas also. Another 250 miles of 22-inch line was laid by the Interstate Natural Gas Co. from the Monroe Field to the Standard Oil Co.'s refinery at Baton Rouge which, early in 1927, was extended to take gas to New Orleans. During the same year the Moody-Seagraves interests, operating as the Dixie Gas Co., built a 22-inch welded line from the Webster Parish and East Texas fields to Houston and Port Arthur, serving many towns on and near the right of way. Later a branch line was built to Dallas and Fort Worth.

During the summer Magnolia Gas Co. completed the first major line to the west from the Monroe Field, 20-inch welded, to connection with its Webster-East Texas-Beaumont line and Arkansas Natural Gas Co. completed preliminary work for a similar line to connection with its Caddo-Little Rick line. It had previously leased the old Crusader 10-inch line built to transport oil from Smackover to Vidalia, La., and put Monroe, and later, Richland, gas into El Dorado and Camden. The Hunter estate, acquiring the El Dorado franchise, also built a line from Monroe to that city, 16 inch, which since has been acquired by Industrial Gas Co. Meanwhile various smaller, local lines had been built to Hodge, La., 10-inch to supply the New Advance Bag & Paper Co.'s pulp mill; Ruston Gas Co. had a 4-inch line to Ruston which, during 1927, was acquired by the Northwest Louisiana Gas Co. (Belchic & Laskey) and coupled to the latter's system in Claiborne, Webster and Bienville Parishes.

St. Louis and Atlanta Lines

Heretofore pipe line development, with the exception of the Caddo-Little Rock line, had all been for the service of north Louisiana, New Orleans and the Texas Gulf Coast refinery centers, but as the year closed 212 miles of 18-inch screw, welded and clamped line was completed by the Memphis Natural Gas Co. from the Monroe Field to Memphis, crossing the Mississippi River 10 miles south of Greenville, Miss.

While attending the convention gas men from Texas, New Mexico, Louisiana, Arkansas and Oklahoma may hear something of the next two major projects which may, possibly, materialize during 1928—a line to St. Louis up the west side of the Mississippi, and another to Birmingham, Atlanta and Chattanooga, on both of which considerable preliminary work has been done and which will depend upon Monroe and Richland Fields for their supply, with the potential East Carroll Field in reserve for the future.

Also, they may learn something of the threat against the fuel supply of several million people in five States and a prospective million or two more in three more States, constituted in the Jadwin plan for controlling Mississippi River floods, to say nothing of the millions of dollars invested in pipe lines and producing activities.

HORATIO N. HUNTER DIES

CHATHAM, Ontario, Jan. 5.—Word has been received in Petrolia of the death at Milwaukee, Wis., recently of Horatio N. Hunter, aged 65. A native of Oil City, Pa., Mr. Hunter came to Petrolia as a boy, learned the drilling trade there, and later drilled in many of the United States fields, making his headquarters at Valparaiso, Ind., and Milwaukee, Wis.

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Coshocton County Assured Good Play

Clark Township Has Most Important Find of Week, Well Making 130 Bbls. Initial and 70 Bbls. Third Day

By Whit
Staff Correspondent, Central West Fields

FINDLAY, Ohio, Jan. 5. — The most important development of the week in the Central Ohio division of the Central West Field was the finding of a well worth while in the deep Clinton sand on the Robert Rhode farm, Section 7, Clark Township, Coshocton County, with an initial production of 130 bbls. the first 24 hours; 60 bbls. the second day and 70 bbls. the third day. This find should bring about a heavy play in the vicinity. No other division of the Central West Field developed anything out of the ordinary although some remarkably fine gas wells were uncovered that will help materially to keep the fires burning in thousands of homes over the State of Ohio.

Only one completion was reported from the old Lima Field of northwestern Ohio. Sherman and Richard's No. 9 well, 1,300 feet from the south line and 200 feet from the west line of the Silas Ames farm, Section 19, Harris Township, Ottawa County, and in the Elmore Field. This well found the top of the Trenton at 1,255 feet and drilled 57 feet into the sand to a total depth of 1,312 feet, the well pumping 6 bbls. the first day. In Perry Township, Allen County, near Lima, the Ohio Oil Co. abandoned Nos. 2 and 3 on the S. Jacobs farm, Section 1, and No. 5 on the John Martin farm, Section 29. Metzger Brothers are drilling No. 4 on the Henry Metzger, Section 22, Spencer Township, same county. In Bath Township, same county, Neely and Nolden will start No. 2 on the Bassett-Marshall farm, Section 13, shortly, and C. A. Peavey and others will start No. 3 on the C. G. Vore, Section 12, same township.

Van Wert County

In York Township, Van Wert County, Mack P. Cole and others pulled out and abandoned old No. 4 on the Edward R. Jones farm, Section 21, and John Ellis did the same with No. 1 on the Margaret Hiller farm, Section 3.

In Union Township, Mercer County, Stelzer & McClure abandoned No. 1 J. W. Dutton, Section 9, and Stelzer and Boyd did the same with No. 1 on the Andrew Coil No. 2 farm, Section 12. W. S. Yocum pulled Nos. 1 and 2 on the L. J. Gallman, Section 25, and Lynch and Sellers pulled No. 4 Isaac Slentz, Section 1, same township. In Washington Township, same county, the Recovery Oil & Gas Co. is drilling on the John Litmarger farm, Section 26.

In Harrison Township, Paulding County, Mack P. Colt, well known Lima operator, has pulled out No. 1 J. A. Houser farm; No. 1 Brady Brothers farm; Nos. 1 and 2 W. A. King, and Nos. 1, 2, 3, 4 and 5 on the A. M. Bailey farm, all in Section 34.

The wildcat recently drilled by Henderson, Messer and others, 500 feet from the south line and 800 feet from the east line of the J. D. Buckingham farm, in the northwest quarter, Section 7, Perry Township, Wood County, and not far from Fostoria, found the Trenton at 1,200 feet, getting a well good for less than a barrel.

Central Ohio

Twenty-one completions were reported from the Central Ohio fields, 2 oil wells with an initial production of 180 bbls., 8 dry holes and 11 gas wells. An even dozen new locations have been made and 21 new wells started drilling. The feature well was drilled by the Ohio Oil Co. on the Robert Rhode farm, Section 7, Clark Township, Coshocton County, 3 miles west of Bloomfield. The first 24 hours' production amounted to 130 bbls.; the second day's output was 60 bbls.; the third 24 hours' production was 70 bbls. at a depth around 3,500 feet and in the Clinton formation. This well should bring out an active drilling campaign as the surrounding territory is held mostly by large operating concerns like the Pure Oil Co., Logan Gas Co., Ohio Oil Co., and others. The depth of the Rhode well has been given as from 3,509 to 3,558 feet. The well on the Howard Mohler farm is in or near the Clinton formation and will be given a shot to determine its value for either oil or gas. In the same township, the Logan Gas Co.'s No. 1-3,044 on the Frank Mullett farm, drilled from 3,519 to 3,574 feet, and pronounced dry. The Pure Oil Co.'s No. 3 on the A. I. Buckley, same township, was drilled to the shallow sand from 686 to 707 feet, with an initial production of 5 bbls., while the Ohio Oil Co.'s No. 1 A. E. Eppley, drilled from 721 to 739 feet was a 2-bbl. pumper. The Ohio Fuel Gas Co.'s No. 1-3,266 on the Peter Shellhorn farm, Section 9, Monroe Township, same county, proved a fair gas well at from 3,225 to 3,298 feet. William Stevens made a location on the J. and E. Lake, Section 12, Pike Township, same county.

In Ashland County, Vermillion Township, the Ohio Fuel Gas Co. has a good gasser in No. 1-3,320 on the L. C. Galloway farm, Section 23. The Logan Gas Co. made a location on the Ada E. Emerick, same section. Same company's No. 1-3,048 on the Fred E. Keener, Section 18, Orange Township, developed dry.

Medina County

In Medina County, Hinckley Township, the Ohio Fuel Gas Co.'s No. 1-3,334 on the L. G. Collister farm, Section 25, is above the average gas well, and Hulse and Kundtz have an average gas well on the Barbara Hess farm, Lots 56 and 65, same township. In Lafayette Township, the Logan Gas Co.'s No. 1-3,034 on the Clara Simpson, Section 16, and No. 5-3,051 on the Medina County Infirmary farm, Lot 2, were both dry. This company is drilling No. 1-3,050 on the A. J. House farm, Lot 6.

In Lorain County, Eaton Township, the Ohio Fuel Gas Co.'s No. 1-3,318 on the John Cowley, Lot 20, is an exceptionally good gas producer. The Logan Gas Co. is drilling No. 1-3,063 on the Bonnie E. Rust farm, Lot 61, same township.

In Wayne County, Sugar Creek Township, the Logan Gas Co.'s No. 1-3,036 on the O. and I. Santmyer, Lot 17, is a dry hole, and the same company is drilling No. 1-3,064 on the Aaron Saurer farm, Lot 14. In Congress Township, Harmon and George are drilling No. 1 Dr. Didde farm, Section 7. In Chester Township, the Logan Gas Co. has an average gas well in No. 2-3,052 on the Joseph W. Troxel, Section 7. The Ohio Fuel Gas Co. made a location for No. 1-3,407 on the Alice C. Bowman, Section 10, and for No. 1-3,406 on the Charles F. Kinney, Section 10. Harmon and George are drilling No. 2 Robert Schmidt farm, Section 8, same township.

In Holmes County, Paint Township, the Ohio Fuel Gas Co.'s No. 1-3,311 on the E. M. Schlabach farm, Section 33, had an excellent flow of gas in its natural state.

In Richland County, Worthington Township, the Ohio Fuel Gas Co. is drilling No. 1-3,354 on the John M. Hay farm, Section 24. The Kemrow Co. is drilling on the J. and M. Hileman, Section 10, Miflin Township.

In Knox County, Brown Township, the Ohio Fuel Gas Co.'s No. 1-3,275 on the Retta Switzer, Section 4, failed to find any sand and goes as a dry hole. Upham Gas Co. is drilling No. 5 Robert J. Kunkle farm, Section 4. Ohio Fuel Gas Co. is drilling No. 1-3,395 on the L. H. Colgin farm, in Pike Township.

In Copley Township, Summit County, the Wiser Oil Co. is drilling on the John F. Hankey, Section 12. In Franklin Township, the East Ohio Gas Co. made a location on the George Helmleater, Section 27.

Licking County did not report any completions, but a number of new developments are under way. In Perry Township, the Preston Oil Co. is drilling No. 111 James Wright, Section 10. Hope Construction & Refining Co. made a location on the Sarah Rector farm. Wehrle Oil & Gas Co. is drilling on the Alfred Kreager, Section 35, Hopewell Township. George H. Long is drilling No. 6 on his own land, Section 24, Madison Township.

Muskegon County

In Muskegon County, Licking Township, the Hope Construction & Refining Co.'s second test on the Joseph Varner, Section 5, is credited with 50 bbls. at from 3,104 to 3,146 feet. Same company drilled a dry hole on the Reason Bolin, Section 11, Hopewell Township, at from 3,425 to 3,479 feet. This well showed around 75,000 feet, but not volume enough to make use. Mid-East Oil Co. is starting a second test on the William Knight, Section 15, Perry Township, where No. 1 showed 87 bbls. at a total depth of 3,820 feet.

In Athens County, Ames Township, the Ohio Fuel Gas Co.'s No. 3-3,290 on the J. E. Gifford, Section 2, is an average gas well in the second Berea sand from 1,365 to 1,391 feet and drilled to a total depth of 1,397 feet. In Carthage Township, the Logan Gas Co. is drilling No. 2-3,062 on the Frank Guthrie, Section 31. In Lodi Township, the Ohio Fuel Gas Co.'s No. 2-3,315 on the State of Ohio land, Section 16, is a light gas well from the second Berea sand found from 1,625 to 1,644 feet and drilled to 1,650 feet. Hulse & Kundtz are drilling a second test on the D. F. Shafer, Section 9, York Township.

In Meigs County, the Ohio Fuel Gas Co. is drilling No. 1-2,435 on the State of Ohio land, Section 29, and the Pure Oil Co. is starting a second test on the John Deer, Section 26.

In Jackson County, Milton Township, Coon & Nichols brought in a test on the James C. Washburn, Section 18, in the Clinton formation, at from 2,700½ to 2,723½ feet, showing initial volume of better than 3,000,000 feet. Ohio Fuel Gas Co. has a light gas well in No. 1-3,313 on the W. S. McClure, Section 28, Franklin Township, and is drilling No. 1-3,362 on the Henry Lefter, Section 13.

Guernsey

In Guernsey County, Cambridge Township, Craig and Sole made a location on the John T. Moore, Section 7. In Westland Township, the Kemrow Co. has an average gasser in No. 3 on the Tony and Mary Popcum, Section 9. This well got the gas in the Squaw sand at from 891 to 897 feet. R. D. Hood and others are drilling on the Samuel D. Gardner, Lot 29, Jefferson Township, and J. E. Patton made a location on the Marshall Stone heirs' farm, Section 8, Spencer Township.

In Morgan County, Marion Township, Hollowell and others have a light gas

(Continued on Page 154)

HARTFORD POOL, KENTUCKY, WELL REPORTED SHOWING FOR 75 BBLS.

By Whit
Staff Correspondent, Kentucky-Tennessee

OWENSBORO, Ky., Jan. 7. — Few completions were reported from any of the counties outside of Daviess which has remained rather active. In the eastern section of the State a well being drilled near Morehead, in Rowan County, by a local syndicate, has a showing for a commercial gas well and, if it pans out as it indicates, will no doubt open a new gas area for development. This well is close to Sugar Loaf Hill and Dr. E. R. Maggard and others are so enthusiastic over the outlook they will ask for a gas franchise in Morehead and, if the test will warrant it, pipe lines will be started as soon as the well is completed and put into shape.

The feature well of the week in the Blue Grass State, was developed in Ohio County, on the A. A. Carter farm, in the old Hartford Pool, about 5½ miles out from Hartford, where 26 feet of rich pay sand was passed through and while the well is reported showing for 150 bbls. the nearer estimate puts it at 75 bbls. This old Hartford Pool was opened quite a few years ago and two Toledo operators held most of the territory, and did some drilling, but the size of the wells was looked upon as too light as big wells were being found at the time in the old Lima Field of northwestern Ohio. The operators were Harry Wolfe, of the Electric Refining Co., in Toledo, and Louis Bacon, who is now a field scout for the Sun Oil Co., also of Toledo.

Heavy shipments of crude oil are now being made by barges on the Ohio River from Owensboro to Louisville refineries. One night a few days ago seven oil barges were centered around the two docks of the Illinois Pipe Line Co., and the Producers Pipe Line Co., on the river front east of Owensboro, preparing to be filled with the crude from the two big stations. Four of these barges docked at the Illinois and three at the Producers. Demand for the oil from the Tri-County Field has become steadier ever since the barge tankers system of transportation was adopted some months ago. Each barge holds 5,000 bbls.

Production Increases

According to the report of the State of Kentucky on production in four counties in the western division there is a big increase shown for November. In Ohio County the month's production of crude totaled 179,711.55 bbls.; Daviess County, 101,592.11 bbls.; Hancock County, 1,084.59 bbls.; and McLean County, 77 bbls., making a total for the four counties of 282,465.25 bbls., or a gain over the October production of 26,786.49 bbls.

Daviess County made the largest gain which amounted to 14,265.09 bbls.; Ohio County's gain was 13,836.10 bbls. Hancock County production dropped off 220.30 bbls., and McLean County 99.40 bbls. According to these figures the western Kentucky fields should show quite an amount above the 300,000-bbl. mark for November, the greatest in the history of the field, when production is

(Continued on Page 156)

INSTRUMENTS

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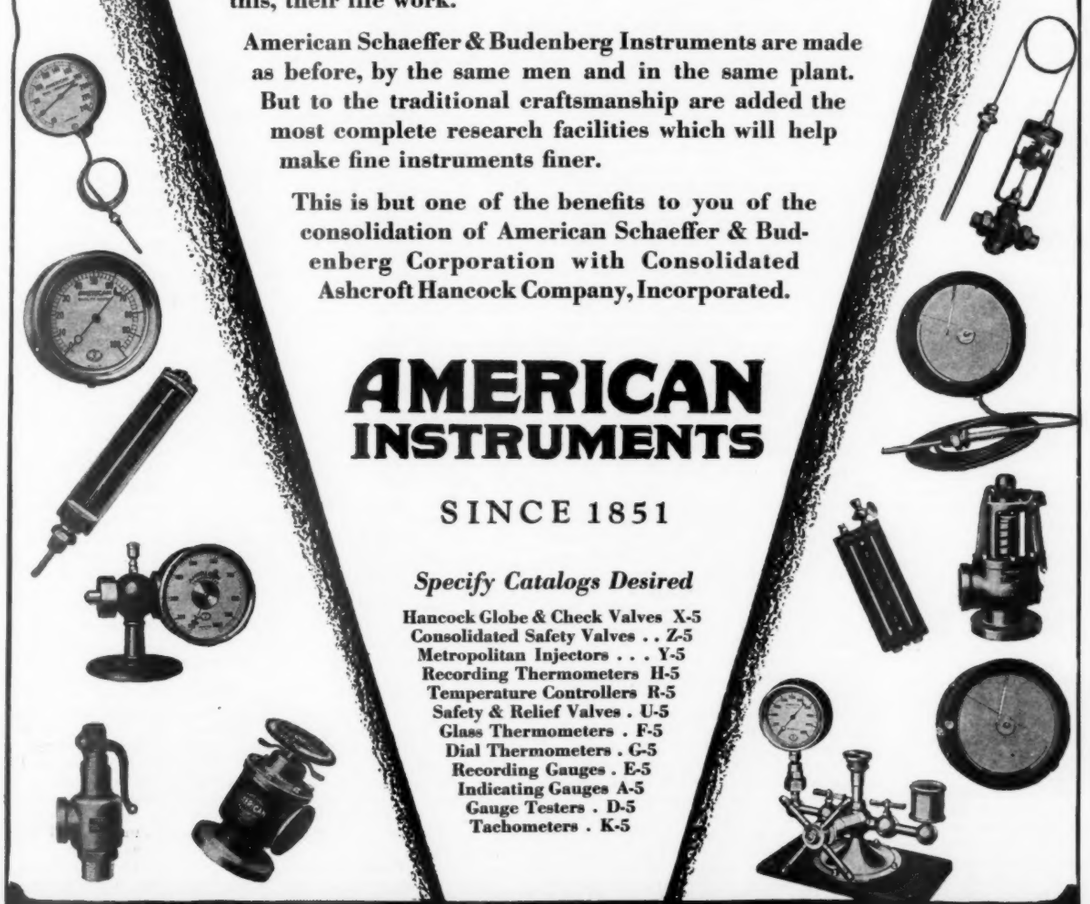

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Some Fair Producers Have Been Completed There Recently. Southeast Ohio Has a Few Better Than Average Wells

By D. S. Wakenight
Staff Correspondent, Eastern Fields

PITTSBURGH, Pa., Jan. 7.—As has been the rule for many months the Southeast Ohio fields furnished the best producers. Neither West Virginia or Southwest Pennsylvania completed any large wells.

In the NW of Section 21, Harrison Township, Perry County, Ohio, the Hopewell Fuel Gas Co. completed a test on the Wade Veyon farm, which flowed 230 bbls. the first 24 hours after shot in the Clinton sand.

In the SE of Section 5, Licking Township, Muskingum County, the Hope Construction & Refining Co. got a 170-bbl. producer the first 24 hours after it shot in the Clinton sand its second test on the Joseph Varner farm.

In the SW of Section 5, Hopewell Township, Muskingum County, the A. H. Heisey Co. completed and shot in the Clinton sand a second test on the S. L. Burrier farm, which produced 70 bbls. the first 24 hours.

Hocking and Perry Counties

In the SE of Section 24, Washington Township, Hocking County, the Gordon Oil Co.'s No. 7 on the Robert Stone farm produced 75 bbls. the first 24 hours after shot. In Section 16, Harrison Township, Perry County, R. C. Miller & Co.'s test on the R. D. Brown farm produced 35 bbls. the first 24 hours.

In the SE of Section 18, Harrison Township, Perry County, the Ohio Fuel Gas Co. has a Clinton sand gasser good for 500,000 feet on the M. T. and F. C. Moore farm.

In Section 15, Richland Township, Holmes County, the East Ohio Gas Co.'s test on the Laural M. Neal farm is a gasser in the Clinton sand good for 250,000 feet. The well was drilled to a total depth of 3,352 feet.

In the NE of Section 21, Harrison Township, Perry County, the Hopewell Fuel & Gas Co. completed and shot in the Clinton sand a test on the Wade Veyon farm. The well had an initial production of 230 bbls. the first 24 hours. This is the largest well completed in that section for several months. In Section 18, same township, R. C. Miller and others have completed in the same formation a test on the R. D. Brown farm. It produced 35 bbls. the first 24 hours after shot. In the same township and section the Ohio Fuel Gas Co. has a 500,000-foot gas well in the Clinton sand on the M. A. and F. C. Moore farm.

In the NE of Section 22, Washington Township, Hocking County, Charles E. Strain and others have completed a second test on the Rebecca Harden farm. It produced 30 bbls. the first 24 hours after shot. In Section 8, Monroe Township, Coshocton County, the Ohio Fuel Gas Co. has a gasser good for 500,000 feet on the Samuel S. Shellhorn farm.

In Section 29, Wesley Township, Washington County, Stonneger and others have completed in the Maxon sand a second test on the D. R. and Rosie Van Warmer farm. It is a duster. In Section 17, Sutton Township, Meigs County, C. D. Sloan has started to drill a second test on the James E. Stobart farm. In Section 10, Fallsbury Township, Licking County, the Preston Oil Co.'s No. 3 on the NE Morris farm is a light pumper in the Berea grit. In Section 10, Brown Township, Knox County, the East Ohio Gas Co.'s test on the D. C. Whiting farm is a duster.

Noble County

In Section 16, Elk Township, Noble County, Thurman Spriggs and others have a fair gasser on the S. W. Ayers farm. In Independence Township, Washington County, John C. Grau & Co. have a 5-bbl. pumper at No. 3 on the Henry Steinhoff farm.

In Bethel Township, Monroe County, the Ohio Fuel Supply Co. has completed in the Big Lime formation a test on the F. R. Blair farm. It is a 15-bbl. pumper and has a strong gas pressure. In the NW of Section 7, Enoch Township, Noble County, Homer Cain & Co. completed in the Buell Run sand No. 4 on the L. R. Crum farm. It is a very small pumper at a total depth of 254 feet.

In Newport Township, Washington County, Mendenhall and others have completed a second test on the A. L. Watson farm. It is a very light pumper. In Warren Township, the Preston Oil Co. got a like pumper on the W. M. Kuhn farm. In Salem Township, H. C. Schramm & Co. have a 2-bbl. pumper at No. 4 on the Harriet O. Schramm farm.

On the Ohio side in the SE of Section 10, Washington Township, Hocking County, the Right Oil & Gas Co. completed a second test on the White-Hengst farm. It is a 15-bbl. pumper in the Clinton sand.

Holmes County

In Section 35, Paint Township, Holmes County, the Ohio Fuel Gas Co. completed in the Clinton sand a light gasser on the Davis B. Kuntz farm. In Section 6, same township, the same company has completed in the same formation a test on the E. M. J. Slaubach farm. It is a gasser good for 500,000 feet in the Clinton sand.

In Liberty Township, Washington County, John M. King has completed a second test on his own farm. It is a fair gasser in the second Cow Run sand. In Section 24, Independence Township, the Henderson Oil Co. has a light pumper in the Berea grit at No. 2 Emil Kolb farm.

Coshocton and Belmont Counties

In Section 12, Pike Township, Coshocton County, the Leonard Oil & Gas Co.'s No. 5 on the Nancy Morris farm is showing for a 15-bbl. pumper in the Clinton sand. In Section 28, Richland Township, Belmont County, Mevey & Stranger have a light pumper in the Berea grit on the W. F. McMeham farm.

West Virginia

The prospects are favorable for Jackson County, West Virginia, to be of some interest during the early part of the year. Recently some fair producers have been completed and inspired the starting of some new work.

In Ravenwood district, near the Roane County line, the South Penn Oil Co. has completed in the Berea grit a test on the C. S. McCarty farm good for 40 bbls. a day, the largest completed in Jackson County up to the present time.

In Grant district, Ritchie County, the Imperial Oil Co.'s test on the C. M. Cox farm is a gasser in the Big Injun sand. In Courthouse district, Lewis County, William Smith has completed his test on the William R. Jewell farm. It is a duster.

In Southwest district, Doddridge County, the Pittsburgh & West Virginia Gas Co. completed a second test on the W. T. Snider farm. It is a light gasser in the Big Injun sand.

In Magnolia district, Wetzel County, the Silver Hill Oil Co. completed in the Big Injun sand a test on the Samuel Frankharser farm. It is in the Big Injun sand and is drilling to the Gordon sand.

In Troy district, Gilmer County, A. L. Britton has completed a test on the A. S. Jones farm. It is a gasser in the Berea grit. In Duval district, Lincoln County, Reishman Brothers have a Big Injun sand gasser at a second test on the Thomas Nelson farm. In Jefferson district, G. T. Ray has a gasser in the same formation at a second test on the R. E. Vickers farm.

Roane County

In Geary district, Roane County, the United Carbon Co. is building a rig on the Caroline Harold farm. In Ravenwood district, Jackson County, the Heck Oil Co. has started to drill on the O. J. Brown farm. In DeKalb district, Gilmer County, the Hope Natural Gas Co. is rigging up on the Frank Wilson farm.

In Battelle district, Monongalia County, the Clovis Oil & Gas Co. has a gasser in the Big Injun sand on the Fred Hennen farm. In Paw Paw district, Marion County, the Owens Bottle & Machine Co. has a gasser in the Gantz sand on the Charles Toothman farm.

In Sheridan district, Calhoun County, the Conservative Gas Co. has a gasser in the Big Injun sand. In Lee district, the United Carbon Co.'s second test on the C. H. and J. J. Davis farm is a gasser in the Big Injun sand. In the same district, the Dunbar Oil & Gas Co. has a gasser in the same formation on the I. G. Flesher farm.

Wetzel County

In Green district, Wetzel County, the Hope Natural Gas Co. has a Keener sand gasser on the Adelaide M. Argensinger farm. In the same district, R. H. Worden & Co. have a gasser in the Big Injun sand on the Richard Carrol farm.

On the right fork of Camp Creek, Stonewall district, Wayne County, Meabon & Huffman have completed in the Big Injun sand a test on the Wayne Osborne farm. It is a gasser good for 250,000 feet. On the same stream and in the same district, 5,000 feet southwest, the United Fuel Gas Co. has a similar gasser on the Lincoln Land Co.'s tract. On the same stream and in the same district, 3,000 feet southeast on the Wayne Osborne farm, the same company has completed and shot in the Big Injun sand a second test on the same lease. It is a gasser good for 250,000 feet.

Wood County

In Williams district, Wood County, on Plum Run, C. S. Reed has completed in the first Cow Run a duster on the Jacob Athey farm. In Sherman district, Boone County, the Pure Oil Co.'s No. 239 on the Williams Coal Co.'s tract is a 10-bbl. pumper in the Berea grit. In Crook district, the Hope Natural Gas Co. has a fair gasser on the N. B. Chambers farm.

On Gillespie Run, Grant district, Ritchie County, the Reno Oil Co. has completed No. 10 on the Jacob Mullenex farm. It is dry in the Big Injun sand. On the right fork of Turkey Creek, Harvey district, Mingo County, the Public Gas Corp. has started to drill deeper No. 12 on the Henry Closterman estate. It was formerly reported a gasser in the Maxon sand.

Boone County

In Crook district, Boone County, the Owens Bottle & Machine Co. has a light gasser at No. 15 on the T. W. Bedford farm. In the same district, the same company has gassers at No. 11 and No. 15 on the Pryor-Allen farms.

In Duval district, Lincoln County, the United Fuel Gas Co. has a gasser in the Big Injun sand at No. 19 on the Horse Creek Land & Mining Co.'s tract. In Jefferson district, the same company has a gasser in the same formation on the P. A. and Sarah Toney farm.

Cabell County

In Grant district, Cabell County, the Harshbarger Oil & Gas Co. has a gasser in the salt sand at a second test on the J. B. Kline farm. In McComas district, the West Virginia Gas Co. has a gasser in the Gordon sand at No. 19 on the John Ross farm. In Curry district, Putnam County, Baker & Osborne's No. 5 on the Farmers-Shoppers farm is a gasser in the Big Injun sand.

Starting Tests

In Mannington district, Marion County, Monroe & Laughlin are hauling tools to a location on the W. T. Morris farm. In the same district, J. L. Moore Oil & Gas Co. is due in the Fifth sand on the H. J. Floyd farm. The Clifton Oil Co. has started to drill on the Simon Moore farm. In Collins Settlement district, Lewis County, H. F. McGinnis & Co. have started to drill on the L. D. Anderson farm. In Troy district, Gilmer County, G. M. Bennett & Co. are due in Gordon sand on the Enos & Blanch Miller farm. In Sheridan district, Calhoun County, W. W. Dailey and others have a rig up on the Robert E. Maze farm. In Union district, Wood County, Hinds Peevey is drilling on the Hebrick-Rapp farm.

On Buck Run, Ravenwood district, Jackson County, the South Penn Oil Co. has the rig completed for a second test on the C. S. McCarty farm. The location is 660 feet east of the Heck Oil Co.'s test on the George Kuhl farm. In Grant district, Ritchie County, P. N. Rinehart has a rig up on the T. B. McFarlan farm. The Lincoln Oil Co. is drilling another test on the P. R. Swisher farm. On Buck Creek, 1 mile east of Smithfield, Murphy district, the Hope Natural Gas Co. has a rig up on the M. A. Ayers farm.

In Union district, Tyler County, the Brooks Oil Co. has moved a drilling machine to a location on the Edward Brooks farm. In Sand Hill district, Marshall County, the Myers Oil & Gas Co. is rigging up on the C. M. Strickland farm and has rig material at a location on the George M. Myers farm. In Liberty district, the Carnegie Natural Gas Co. is rigging up on the T. D. Conaway farm. In the same district, the Cameron Heat & Light Co. is due in the Big Injun sand on the Hannah Strickland farm. In the same district, Heineman and others have made a location on the E. W. Ernest farm. In Green district, Wetzel County, R. W. Worden & Co. are due in the Big Injun sand on the Richard Carroll farm. In Center district, Gilmer County, the Mud Lick Oil & Gas Co. has a Big Injun sand gasser at a second test on the Jefferson Smith farm.

Southwest Pennsylvania

In Buffalo Township, Butler County, J. F. Trees has a gasser on the J. F. Trees farm. In the same township, Charles Heck's test on the Edward Porter farm is dry at a depth of 2,700 feet. There are three wells drilling and the Phillips Gas & Oil Co.'s No. 1 on the Susan J. Penrose and No. 1 on the W. C. McFarlan farms are holding at 100 bbls. a day, respectively. In Westmoreland County, the Phillips Gas & Oil Co. has a gasser on the Risia farm.

In Morris Township, Greene County, the Manufacturers Light & Heat Co. has a duster in all sands at a second test on the L. R. Rush farm. In Moon Township, Allegheny County, the McCausland Oil Co.'s test on the J. B. Meanor farm is a duster.

SOVIET REPORTS EXTENSION

WASHINGTON, D. C., Jan. 5.—The Soviet Telegraph Agency has circulated a statement to the effect that a representative of that agency was informed by authoritative persons that the Vacuum Oil Co. has extended its agreement with the Naphtha Syndicate for the supply of Soviet oil to the markets of the Near East. It is added that the extension covers a number of years.

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Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.

Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

In case an immediate answer is important, one will be given by mail if the writer requests it.

TIME NEEDED TO RUN CASING

I wonder if you could tell me what is considered fair time for the work of running casing. Of course there are different conditions that have to figure in different jobs, but I find that different crews show a big difference in time spent on jobs where all the conditions are practically the same. How many joints of casing would you say ought to be run in eight hours under ordinary working conditions?—C. E. G.

Under ordinary conditions 75 joints in eight hours would be a fair estimate of the speed at which casing should be run in a well. In an article on "Landing and Cementing Long Water Strings" J. B. Case, chief deputy supervisor of the department of oil and gas in the California State Mining Bureau, says:

"The length of time necessary to put in a string of casing after everything is in readiness depends upon the amount, total weight and size of casing to be put in, the number of casing lines necessary to handle it and the number of men on the job."

The following table, which Mr. Case says was made from data furnished by several companies, gives some idea of the time required to put in casing of various sizes:

Size of casing (in.)	Weight (lb.)	Number of lines	Depth set (ft.)	Time (hr.)	Remarks
15	..	..	....	..	103 feet per hour 10 men;
11	60	9	4,724	22	215 feet per hour
11	60	8	....	..	130 feet per hour
8¼	36	..	4,500	18	250 feet per hour
6¼	..	..	5,600	24	1,000 feet welded; 233 feet per hour
4¾	..	..	4,900	13	377 feet per hour

One of the larger companies operating in the Mid-Continent fields reports the average times for running different sizes of casing as follows: Approximately 1,900 feet of 10-inch casing can be run in seven hours. Approximately 2,200 feet of 8¼-inch can be run in 8 hours and from 3,000 to 3,200 feet of 6-inch in 10 hours. A fairly good average figure in the Mid-Continent area would be 15 joints per hour for all sizes up to and including 12½-inch. The rate of running casing varies widely with the conditions to be met and in different cases must vary widely from the figures cited.

EFFECT OF ROD STRETCH

Of what advantage is a long slow pump stroke in reducing the loss of effective stroke by rod stretch? How much do you think sucker rods will stretch per 1,000 feet in depth of hole? How much difference will this make between the length of stroke of the polished rod and that of the traveling valve?—H. M. D.

These questions are being studied by the engineers of many companies. Undoubtedly a string of rods in a deep well is subjected to considerable stretching, the greatest strain occurring on the rods on the upstroke. The amount of strain is variable, depending upon the different sets of conditions in each well. Experiments performed in wells from 1,000 to 3,000 feet deep have shown in some cases no loss of stroke by rod stretch, whereas in other cases loss of stroke has been indicated. From such results disagreement has arisen as to how much loss of stroke may occur from rod stretch.

Recognizing that more or less loss of stroke must occur from rod stretch in some deep wells the following notes quoted from the D & B Pump & Supply Co. bulletin upon sucker rods give an admirable outline of the principles involved:

"The load, due to the quantity of fluid in the tubing, is carried alternately by the sucker rods and the tubing. On the upstroke of the rods the ball in the working valve closes and the fluid load is transmitted to the rods. On the downstroke, however, the ball in the working valve opens and the ball in the standing valve closes. It can readily be seen that this puts the weight of the fluid column on the standing valve through which the load is transmitted to the tubing. This fluid load is then carried by the tubing, there being no load on the rods except that of their own weight. On the upstroke, however, the weight of the fluid comes on the rods, causing them to stretch. The amount of stretch in the rods due to the load of the fluid means a large loss in stroke. The load being released from the tubing will cause it to contract, the lower end of the tubing following the plunger in its upward course. When the tubing takes over the load, the rods are relieved, causing them to contract. Of course this stretching of the rods and contraction of the tubing or vice versa occur at the same time, although we have considered them as occurring separately.

"The moment of greatest strain on a string of rods is the beginning of the upstroke, and the greatest strain is on the top rods which have to lift, not only the fluid load but the weight of the rods below. The inertia of this weight makes the start a herculean task, particularly when there is little or no gas present to give the fluid a boost. The result is that the rods will spring and some of the stroke will be lost.

"The amount of spring in action may vary from 2 inches to 10 inches per 1,000 feet. Supposing then at 4,000 feet, 16 inches of stroke is lost, a well pumping 25 strokes per minute would have lost 400 inches of the total motion given the polish rods in one minute. Assume that the well is being pumped with the wrist pin in the first hole of the crankshaft, and with a normal 24-inch stroke. The total motion in one minute at 25 strokes per minute would be 600 inches and the loss 400 inches or 66⅔ per cent. by running a 36-inch stroke, the number of strokes per minute may then be reduced to 17, giving the polish rod a 612-inch motion, and the stretch is reduced to 272 inches or a loss of 44 per cent. Going further, we find that by pumping with a 48-inch stroke, 13 strokes per minute are sufficient to give the same motion and the loss occasioned by the stretch is about 33 per cent."

From this, the advantage of long slow strokes to reduce the loss of stroke due to rod stretch must be apparent.

UTILIZING THE EXHAUST

Will you please refer me to articles describing apparatus to utilize the heat from gas engine exhausts for heating and process steaming? Likewise please name the manufacturers of this kind of apparatus if there are any such.

We would like to install a device on the exhaust of several of our gas engines to furnish heat for warming crude oil. We can do this by either circulating hot water or steam in coils or by turning steam directly into the oil tank where it will condense.—R. B. B.

Utilization of the heat from the exhaust gases from gas engines is now common practice. It generally is accomplished by what in reality are large heat exchangers. The exhaust tubes from the gas engines are of large cross section, so that numerous small tubes can pass lengthwise through them (laterally, insteady of in coils) without reducing too greatly the cross section of the exhaust, which would cause back pressure on the compressor. These small tubes contain the water that is to be heated by the exhaust gases. The construction is similar to that of a water tube boiler and some of the larger heaters of this type are called exhaust gas boilers.

For technical informations upon this subject you are referred to an article by A. B. Newell entitled "Oil Engine Exhaust Heat Recovery" in The Oil Engine Power Plant Hank Book, fourth edition, page 93. For further information upon the subject you should write to the American Society of Mechanical Engineers, New York City. Manufacturers of this equipment are listed in the catalog of the above-named society.

AVERAGE YIELD PER WELL

Is it known what the average production of crude oil per well in the United States is? Of course there is a big difference between the average in a field like the Seminole, for instance, and the average in most of the eastern fields. However, it would be interesting to know what the average for the country is if it has ever been figured out.—N. E. N.

The average daily production of oil per well in the United States in 1927 was 7.76 bbls. The well averages ranged all the way from 56.02 bbls. in California to .34 bbl. in Pennsylvania. Colorado, with a daily average per well of 49.40 bbls., was next to California. Although Oklahoma led in total production with 276,022,000 bbls. for the year, as compared with California's 230,751,000, its daily average per well was only 12.28 bbls. The average production per well in any state is determinable without difficulty, since the total production and the number of wells are both matters of official record.

ADVANTAGES OF BEANING

Can you tell me the relative advantages of beaning a well at the top or bottom of a flow string? Can you refer me to any satisfactory bottom hole beaning devices that can be adjusted from the top of the hole without pulling tubing?—W. P. T.

There are several bottom hole beaning devices on the market that are said to be giving excellent results in the reduction of gas-oil ratios. They are in the nature of foot pieces placed at the bottom of tubing and are adjustable from the top of the well. Their purpose is to use the expansive force of the gas most efficiently, and also to increase the production of the wells where this is possible. The success of these devices depends largely upon the characteristics of the individual wells. They seem to work advantageously in some wells, but not in all.

Bottom hole beaning requires the use of tubing, and unless otherwise provided for, requires the pulling of tubing to change beans. It has been suggested that beaning at the bottom of the flow string admits oil with its dissolved gas through the restricted opening in the bean and into the flow string of greater cross section where the gas has the best chance to expand and do its lifting work. The tubing acts as a sort of expansion chamber.

In beaning at the top of the flow string there is a tendency for the gas to separate above and flow ahead of the oil which causes surging or heading. Beans at the top of the wells, generally in the flow lines, are most easily changed or adjusted, and do not make it necessary that the wells be flowed through tubing. Where sand cutting is bad, there is a distinct advantage in beaning at the top of the wells where the beans can be most conveniently changed. Individual wells respond so differently to beaning that it is difficult to lay down any hard and fast rules regarding the advantages or disadvantages of one method over another. It depends very largely upon the conditions to be met in the individual well, and upon the results of actual trials.

EVILS OF FAST PUMPING

What are the relative advantages or disadvantages of high-speed pumping over low-speed pumping?—H. H. K.

High-speed pumping may or may not give greater production than low-speed pumping but it is invariably more severe upon the equipment than low-speed pumping. It produces faster wear upon the working parts of the pump, gives greater rod stress and vibration, more rod and rig trouble, and requires more power. As a rule high-speed pumping increases emulsion troubles.

The D & B Pump & Supply Co. bulletin upon sucker rods describes the effects of high-speed pumping as follows:

"Rods in slow-motion jack wells give little trouble. A beam well, however, may run 15, 20, 25 or even more strokes per minute, sometimes giving the rods no chance to settle evenly in a direct line with the pump before the upward jerk snaps them rigid again. It is this snap and vibration that causes the steel to finally lose its strength, and the deeper the well the greater the strain. This is not crystallization, but rather rod fatigue."

High-speed pumping also increases the loss of stroke by rod stretch over what would occur with the same total length of stroke per minute in long slow strokes.

This machine was designed for drilling 2500-ft. holes and it has more than come up to expectations.

WEIGHING less than six tons this Sheldon D Machine, powered by a Waukesha 60 hp. engine, drilled 4160 feet—set 12½-inch diameter surface pipe—2700 feet of 6⅝-inch diameter casing and drilled the last 750 feet in limestone with rock bits all within 40 days' time. And this record was made at a tremendous saving in the cost of fuel and transportation.

Waukesha oil field engines are built in sizes up to 300 hp. to meet each oil field production requirement with the size most economical. The engines are readily portable and do not require elaborate foundation or enclosing buildings for mounting or protection.

904 *OIL INDUSTRY EQUIPMENT DIVISION*

WAUKESHA MOTOR COMPANY

New York Tulsa **Waukesha, Wisconsin** Houston San Francisco

Exclusive Builders of Heavy-Duty Internal Combustion Engines for Over Twenty Years

MEN KNOWN IN OILDOM

T. M. Martin

Effective January 1, T. M. Martin became vice president and secretary of the Lion Oil Refining Company with headquarters in El Dorado, Ark.

The new position marked another step in Mr. Martin's rapid rise in the marketing branch of the oil industry. To accept the executive position with the Lion company, Mr. Martin resigned as secretary and general manager of the Mid-Continent Petroleum Corporation of Kentucky, which is the retail marketing subsidiary of the Mid-Continent Petroleum Corporation, one of the major oil companies of the Mid-Continent Field.

Mr. Martin's first connection with the oil industry was in Chicago during 1922 where he was engaged in tank car marketing. In 1923 he accepted the management of the Diamond Petroleum Company of Louisville, Ky., which was a subsidiary of the Mid-Continent Petroleum Corporation. Later the company name was changed to the Mid-Continent Petroleum Corporation of Kentucky and became the marketing branch of the parent company.

Under Mr. Martin's supervision the station department of the company grew from seven bulk plants in western Kentucky to several hundred bulk and service stations located in Kentucky, Indiana, Illinois, Missouri, Iowa and Wisconsin.

Before his connection with the oil industry, Mr. Martin who is 33 years old, was engaged in the insurance business. During the World War he attained the rank of captain in the infantry.

In his new work Mr. Martin will have charge of sales for the 10,000-barrel refinery operated by the Lion company at El Dorado.

PERSONAL PARAGRAPHS

Frank King, drilling contractor, of Tulsa, is in the West Texas fields.

* * *

Dr. J. A. L. Henderson left Canada for England after a visit to the Dominion oil fields.

* * *

A. E. Remington, Pure Oil Company geologist, was a recent visitor in San Angelo, Tex.

* * *

Guy Nicholson, president of the Oil Scouts Association, has returned to Amarillo, Tex., following a trip to Fort Worth.

* * *

Ernest B. Tracey, New York City, president of the Louisiana Land & Exploration Company, has been spending a short time at the Houston, Tex., offices of the company, of which F. W. DeWolf, vice president and general manager, is in charge.

J. E. Huff, oil producer of Tulsa, spent the Christmas holidays with relatives in Houston, Tex.

* * *

D. P. Hamilton, vice president and secretary of the Root Refineries, Inc., of Shreveport, La., spent the week in New York.

* * *

Junis Seashore, Peerless Oil Company scout, has returned to San Angelo, Tex., after spending the holidays in Lake Charles, La.

* * *

Edmund Jussen, Jr., of the Union Oil Company's geological department, became the proud father of a baby girl born Christmas Eve.

* * *

E. W. Sinclair, president of the Sinclair Consolidated Oil Company, was a Tulsa visitor last week, and has returned to New York.

* * *

S. F. Shaw, air-gas lift expert, is spending some time in the Rumanian fields in the interest of the Standard Oil Company of New Jersey.

* * *

E. H. O. Elkington has been appointed general manager and assistant resident director of the Anglo-Persian Oil Company, Ltd., in Persia.

* * *

M. A. Finney, Pure Oil Company production superintendent in the Pampa district, has returned to the Panhandle following a visit to Fort Worth.

* * *

Blackwell Newhall has been elected assistant secretary of the United Gas Improvement Company, succeeding John Hopkins, who was made secretary.

* * *

George D. Locke, vice president in charge of sales for the Barnsdall Oil Company, dropped down from Chicago to spend a few days in Tulsa last week.

* * *

H. F. Nash, head of the Arkansas Natural Gas Corporation's land department at Shreveport, La., has returned to his office after a holiday visit with relatives.

* * *

W. A. Belstrom, land man for the Bennett Petroleum Company, Houston, Tex., has been confined to his home the past week because of influenza.

* * *

Forrest R. Rees, formerly geologist for the Oil Properties Corporation of Tulsa, has been elected president of that company succeeding George W. Tracy, resigned.

* * *

David Donoghue, of the Texas Pacific Coal & Oil Company, has returned to his home in Fort Worth, Tex., following a visit to Houston, during the holidays.

* * *

Carl H. Beal recently resigned as vice president of the Marland Oil Company of California and will devote his future energies to development activities in California.

* * *

Fenton M. Wood, for 10 years assistant treasurer of the Kingwood Oil Company, of Okmulgee, Okla., has been made agent of the Marland Refining Company at Tulsa.

* * *

Stacy B. Dorn, Marland Production Company land man in West Texas and New Mexico, has returned to his San Angelo, Tex., headquarters following a visit to Fort Worth.

* * *

F. J. Adams, general agent for the Gulf Production Company in North and West Texas, is at the bedside of his mother in Houston, Tex., who has been critically ill for several days.

* * *

Sir Henri W. A. Deterding, general managing director of the Royal Dutch Company, has been made an Honorary Doctor of Technical Sciences by the Technical University at Delft.

* * *

Dr. A. E. Dunstan, chief chemist of the Anglo-Persian Oil Company, who had been attending the Second International Conference on Bituminous Coal at Pittsburgh, Pa., has returned to London. He also represented the Institution of Petroleum Technologists at the American Petroleum Institute meeting at Chicago, and found time to visit the most important American refineries.

A. S. Debenham, director of the Asiatic Petroleum Company, Ltd., has returned to London from his recent trip to the United States, where he had many conferences with Richard Airey.

* * *

Don Connelly, of the Indian Territory Illuminating Oil Company land department, has been transferred from the field forces to the main office of the company at Bartlesville, Okla.

* * *

W. C. Grant, secretary of the Southwestern division natural gas department of the American Gas Association, was in Shreveport, La., preparing for the division convention January 14 and 15.

* * *

Howard H. Pell, Jr., formerly associated with Cravath, Henderson & de Gersdorff, has been elected assistant secretary of the Columbia Gas & Electric Corporation and some of its subsidiaries.

* * *

Allan I. Cole has resigned as chairman of the board of directors of the Pennsylvania Exchange Bank of New York to act as vice president and treasurer of the Eureka Natural Gas Corporation.

* * *

H. D. Easton, Shreveport, La., consulting geologist, is making a regional survey of territory in Fayette and adjoining counties in Tennessee that has been recommended by the Tennessee Geological Survey.

* * *

I. H. Muntz, formerly assistant superintendent of the Simms Oil Company's Dallas, Tex., refinery, has been transferred to the Smackover, Ark., plant as superintendent succeeding R. E. Upp, who has joined another company.

* * *

L. B. (Tip) O'Neil, who resigned as vice president and director of The Texas Company, is drilling a wildcat near the Elwood Field of Santa Barbara County, California, in conjunction with J. E. O'Donnell and a number of other operators.

* * *

R. A. Broomfield, president of the Barnsdall Oil Company of California, recently elected president of the California Chamber of Mines and Oil, was elected a director of the United States National Bank at a recent meeting of the bank's directors.

* * *

H. E. Bell, head of the newly formed personnel department of the Humble Oil & Refining Company and Humble Pipe Line Company, Houston, Tex., is leaving for an extended trip to California to study operation of such departments in companies there.

* * *

Clem S. Clarke, Halliburton Oil Well Cementing Company agent in North Louisiana and Arkansas, and head of the American Drilling Company, has been confirmed as postmaster at Shreveport, La., an office he had been occupying under temporary appointment for the past several months.

* * *

Joe Zeppa, secretary of the Arkansas Natural Gas Corporation, at Shreveport, La., has resigned that office to become vice president of the Macmillan Petroleum Corporation, of Los Angeles, Calif., and will assume his new duties as soon as he can close his affairs with the Arkansas Natural corporation.

* * *

Ellsworth McGowan has resigned his position as confidental assistant to Col. F. R. Kenney of the Marland Oil Company of California to become vice president in charge of operations in California for the Kettleman Oil Corporation. Colonel Kenney recently resigned from the Marland Oil Company of California because of ill health.

* * *

M. C. Ehlen, vice president of Crown Central Petroleum Corporation, Houston, Tex., played host to about 40 oil men of that city at a barbecue at his company's refinery at Pasadena. The barbecue was a 200-pound buck killed by Mr. Ehlen on the latest of one of his periodical hunts in the Laredo district on the border.

* * *

W. S. Farish, president of the Humble Oil & Refining Company, Houston, Tex., has returned to his desk following an extended trip taken after attending the American Petroleum Institute at Chicago early in December. Mr. Farish's trip carried him from Chicago to the East Coast and to several of the southeastern states.

Natural Gas Developments

Government Helium Plant at Fort Worth Will Close Jan. 10

The Government's helium plant at Fort Worth, Tex., the first plant ever constructed for the extraction of helium from natural gas and the largest plant of its kind in the world, will be closed January 10 because of lack of gas to operate on. Natural gas processed through the plant has been obtained from the Nocona Field in Texas. Declining production of natural gas there resulted in such a small quantity being available for use at the helium plant the cost of the helium obtained became prohibitive.

The Government is constructing now another helium plant at Sonsey, Tex., on the Rock Island Railroad about 8 miles west of Amarillo. This plant will have a capacity of about 2,000,000 feet of natural gas daily.

Work on the Fort Worth plant was started in 1919 with C. E. Earle as chief engineer in charge of construction. Mr. Earle is and has been naval representative at the plant since its completion in 1921. This plant provided all the helium used by the Government up to 1927 when the plant built by the Kentucky Oxygen-Hydrogen Co. at Dexter, Kans., began to supply a part of the Government's needs. Helium for all the dirigibles had been procured from the Fort Worth plant.

Closing the Fort Worth plant leaves but one helium plant operating in the world, as far as known, it being the one mentioned at Dexter, Kans.

When operating nearly at capacity, the Fort Worth plant processed about 5,000,000 cubic feet of natural gas daily from which it secured 40,000 cubic feet of helium. Equipment to the value of probably half a million dollars is assembled at the Fort Worth plant.

INDUSTRIAL GAS USE GAINS IN NEW ORLEANS

NEW ORLEANS, La., Jan. 5.—Transfer of the boilers of the American Sugar Refining Co. plant at Chalmette to natural gas, supplied by the New Orleans Public Service, now being effected, places that concern as the largest independent industrial user of the fuel product. Five boilers of the sugar refinery have already been converted to natural gas and the remaining 15 will be changed at once. The New Orleans Public Service is its own best customer for natural gas through the operation of the Market Street Power House and the sugar refinery is the second largest user here.

Construction of a special high pressure 16-inch main from the center of the city to Chalmette was effected by public service to supply the big refinery. The refinery will use a minimum of 6,000,000 feet and a maximum of 13,000,000 feet daily, or a yearly average of 3,500,000,000 feet, or almost twice the amount used by domestic consumers at present.

Other large plants now served or in process of being served with natural gas include the Henderson Sugar Refinery, the Panama Ice Co., the Johnson Iron Works, the Jahncke Dry Dock & Shipbuilding Co., the Ford Motor Co. and the Cloverlands Dairy Products Co., as well as a number of bakeries and lesser industries.

PLANS NEARLY READY FOR LINE TO ST. LOUIS

By B. E. V. Luty

PITTSBURGH, Pa., Jan. 7.—Reports in the pipe trade are that arrangements for the natural gas pipe line from the Monroe, Louisiana, Field, to St. Louis, are nearly completed, involving between 400 and 500 miles of 22-inch pipe, some contracts for industrial use of the gas having been completed and only one or two more being required to assure sufficient market for piping the gas.

A summary gives an idea of the increase being made in natural gas supplies. Orders recently placed for pipe for natural gas include the El Paso to New Mexico line, 16-inch and the Baxter Basin line to Salt Lake City and Ogden, 18-inch. These two lines with the Memphis line and the prospective Monroe-St. Louis line would make a combined capacity of 250,000,000 feet daily and if run full for a year would represent about 7 per cent of the estimated total of natural gas production in the United States.

There is a fair demand for seamless casing and drill pipe. Demand for standard pipe is expected to pick up slightly now that the annual inventory date is past, but jobbers do not carry stocks as they formerly did. A substantial increase should occur soon through the approach of spring.

Last month's steel production was remarkably heavy for the time of year, breaking all December records. This was despite the slowing down of some consuming lines for the winter and the disposition of all buyers to keep down inventory, particularly important in States like Michigan which tax the January 1 inventory.

Mills accumulated quite a lot of shipping orders for release after January 1 and the rate of steel production is now in line for an increase. Measured in steel ingots production was at about 85 per cent of capacity in December and the same for the calendar year. Increases are to be expected up to March or April, in a seasonal way, that being the uniform precedent unless conditions are particularly bad while now they are obviously good.

The new year is not likely to bring any steel price changes of consequence. The market may grow stronger fundamentally, but producers as a whole would be indisposed to take advantage of the circumstances, feeling that prices are now on a remunerative basis, if tonnage continues at the rate of the past year. According to the theory, if tonnage decreases higher prices might be in line, to maintain percentage returns on investment, but of course such advances would not be feasible. On the whole there has been a slight average increase in finished steel prices since the low point a little over a year ago. Prices are much below those of 1923, in the majority of lines, but production costs have been substantially reduced and there has even been some further reduction in the past year, though not much.

The valley pig iron market remains dull and it is not overly firm. Heavy melting steel scrap on the other hand has stiffened materially. Sales have been light, but have been at the advanced price of $18.50, to two mills, and further mill buying is expected at this price or higher.

SOUTHERN CALIFORNIA GAS COMPANY LINES

LOS ANGELES, Calif., Jan. 5.—Contracts have been completed for delivery of gas by the Southern California Gas Co. to March Field, Allessandro, Alberhill and Perris. With these additions to the lines of the company, gas will be distributed through 4,153 miles of main to 96 cities and towns of southern California.

A contract has been executed with the Government calling for the exclusive use of natural gas for cooking, heating and industrial purposes in March Field.

Work was started July 6 on laying 47 miles of mains, which will include a 6-inch feeder line, from Corona through Temescal Canyon into the brick manufacturing plants of Alberhill.

Ten miles of 12-inch welded steel pipe line have just been completed from Taft, parallel with the main distribution line of the company.

TEXAS CARBON BLACK OUTPUT

Texas Panhandle within the past year has taken the lead in output of carbon black with daily production of around 400,000 pounds. Sixteen plants are either in operation or under construction in four Panhandle counties and value of estimated annual production amounts to $10,000,000. Daily output will amount to $28,000, upon completion of new plants under construction. More than half of the world's carbon is now coming from the Panhandle area.

GAS CONTRACT SIGNED IN MICHIGAN FIELD

MUSKEGON, Mich., Jan. 5.—Contracts for the purchase of nearly 2,000,000 feet of natural gas daily have been signed with the Industrial Gas Co. of Michigan by industries and the municipal electric light plant at Grand Haven practically assuring the laying of a line between the Muskegon Field and the near-by city, a distance of about 12 miles.

Laying of the line will not be started, however, until more than 2,000,000 feet a day output has been assured. Several of the larger industries and the domestic gas company are expected to sign giving the new pipe line a daily load of about 3,000,000 feet out of the Muskegon Field. It is planned to lay a 6-inch line to carry the load.

About 5,000,000 feet of gas a day is now being pulled out of the Muskegon Field by the four existing pipe lines. Of this total about 3,000,000 feet is being used by the Continental Motors Corp., another 1,000,000 feet by the customers of the West Michigan Consumers Co., another 1,000,000 feet by the Muskegon Traction & Lighting Co., the local gas company, and still another 1,000,000 feet by the Central Paper Co., the only industry served so far by the Muskegon Pipe Line Co.

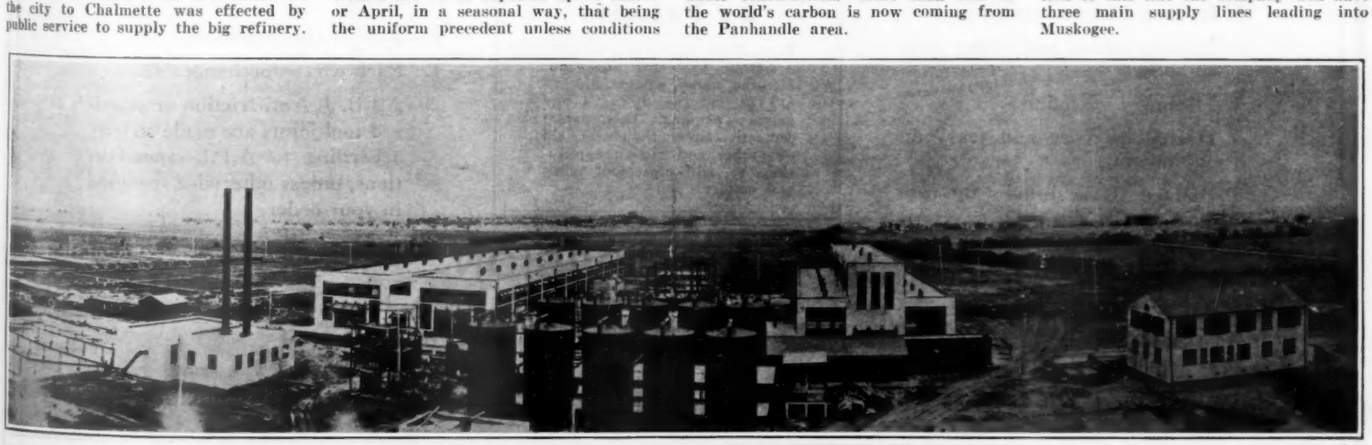
Only one boiler is connected for natural gas at the Central Paper Co., whereas there are three others to be connected. Consumption of the Muskegon Pipe Line Co. is expected to be between 5,000,000 and 10,000,000 feet daily within a short time. The same amount is the goal of the West Michigan Consumers Co. which has connections in its line near 32 Greater Muskegon industries. The Traction company probably never will exceed 1,500,000 feet while the Continental and Laskey Foundry companies will use about 6,000,000 feet a day.

NEW COMPRESSOR STATION

HOUSTON, Tex., Jan. 5.—The Southern Gas Co. has completed an additional compressor station near San Antonio which will boost the capacity of its line into Austin, Seguin and New Braunfels 7,000,000 feet daily. The Southern Gas Co. pipes gas from Southwest Texas fields to San Antonio, the above mentioned cities and others in that district.

NEW LINE TO MUSKOGEE

The Oklahoma Natural Gas Corp. is building a new 8-inch gas pipe line into Muskogee from the Keefeton Field, and is constructing a regulating station at the southeast city limits. With the completion of this line the company will have three main supply lines leading into Muskogee.



Government's helium plant at Fort Worth, Texas.

Views to left show B. J. Collars with Machined groove and Bettis Protector Installed.
Views to right show B. J. Anti-friction Tool Joints with Machined groove and Bettis Protector Installed.
Prevent metal to metal contact between casing, pipe, tool joints & collars
Bettis Protector

B. J. Anti-friction
Tool Joints and Collars
Offer These 20 Outstanding Advantages

1. Reduce danger of collapsed casing.
2. Prevent wear on drill pipe.
3. Prevent wear on Tool Joints and Collars.
4. Minimize twist-offs and fishing jobs.
5. Reduce fuel consumption.
6. Reduce steam and water consumption.
7. Minimize vibration.
8. Decrease "wear and tear" on equipment.
9. Reduce water breaks by preventing casing wear.
10. Protectors made entirely of rubber.
11. Will not slip on tool joint.
12. Retain original strength.
13. Permit drilling of straighter hole.
14. Outlast the drill pipe.
15. Cannot clog circulation.
16. No metal added to hole.
17. No metal-to-metal contact with casing.
18. Rubbers are seamless.
19. Each part interchangeable.
20. All B. J. Anti-friction or standard tool joints are made strictly according to A.P.I. specifications, unless otherwise specified in your order.

Fully Protected by Patents

B. J. Tool Joints and Collars, and Bettis Protectors are manufactured under patents No. 1,619,728 and No. 1,573,031 and patents pending. This patent protection covers the entire field of rubber anti-friction applications to drill pipe, tool joints and collars.

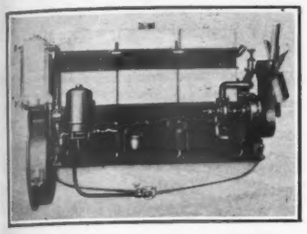
DISC BIT DIVISION
of Byron Jackson Pump Co.
2150 East Slauson Ave., Los Angeles, California
Succeeding Rotary Disc Bit Co., U. S. Tool Co. and Craig Oil Tool Co.

EQUIPMENT AND SUPPLIES

BUDA BRINGS OUT NEW SIX-CYLINDER DIESEL

The Buda Co. of Harvey, Ill., announces a new Buda-M.A.N. 6-cylinder, 6½ by 8¾, 180-horsepower, high-speed, light-weight, full Diesel engine. Like the other Diesel engines manufactured by the Buda Co. this new model is closely related to designs of the M.A.N. Co. of Germany, under whose license and patents the Buda Co. is operating.

The weight of this 6-cylinder engine with all equipment, except clutch, is approximately 5,400 pounds. The overall length is 89 inches and the height is 58 inches. The engine is designed in accordance with the airless fuel injection principle (spray atomization.) Compressed



air is not used for either starting or running. The engine is started by means of a small air-cooled, 2-cylinder engine mounted on a bracket which is cast on the flywheel housing. Electric starters can be provided for starting instead of the 2-cylinder gasoline engine if so desired.

Standard equipment consists of fuel filters, lubricating oil filters, air filter, set of tools and starting equipment. Fuel having a Baume gravity of 26 to 38 can be used. Electric generating units, locomotives, rail cars, dredges, compressors, shovels and many other forms of industrial applications can be handled by these Diesel engines.

NEW FACTORY OCCUPIED BY PATTERSON-BALLAGH

Advances in the compounding and handling of rubber for the production of antifriction protectors for drill pipe are embodied in the factory just completed by the Patterson-Ballagh Corp. in Los Angeles, according to Jack Ballagh, secretary. The plant, at Sixty-fifth Street and Wilmington Boulevard, was designed especially for the manufacture of drill pipe protectors. By a system of conveyors and hydraulic tables the freshly compounded rubber is converted into molds with minimum handling operations and with elimination of lengthy cooling processes.

The plant includes a testing department where both the crude and finished rubber can be subjected to various tests of friction, erosion, tensility and composition. A research department has been provided, as well as stock rooms, seasoning departments and secondary handling facilities. The executive offices of the company will be maintained in the Insurance Exchange Building in Los Angeles.

BROWN COMPANY IN NEW OFFICE

The New York office of the Brown Instrument Co. has been moved to 117 Liberty Street from 50 Church Street. This change was made necessary by the need of larger quarters to provide for the increased staff now attached to this district office. The company makes the Brown electric flow meter and other instruments for measuring, recording and controlling temperature, pressure, liquid level and other industrial process factors.

COOPER CALENDAR INVITING

One of the most attractive calendars for 1929 is the one being distributed by The C. & G. Cooper Co., Mount Vernon, Ohio. It is printed in colors and each page contains calendars for three months. Above them are shown installations of gas engines or compressors manufactured by the company or views of its plant in Mount Vernon.

"SULAMITE" FOR DRILL BITS

The current issue of "Mine and Quarry," published by the Sullivan Machinery Co., Chicago, contains an article on "Sulamite," which says in part:

"Ever since the price of miners' diamonds or carbons used in the bits for diamond drills became a serious item of cost, there has been a search for a material obtainable at relative small expense which might be used as a substitute.

"Within the past few years, some success has rewarded the efforts of those making the search. Sulamite, one of these substances, has been successfully used for several years in Sullivan diamond core drills.

"Sulamite (a registered trade name) is a metallic alloy, having practically the same characteristics as carbon or black diamond, with the exception that it is not as hard. It is, however, considerably harder than emery, corundum, and similar substances. The process of manufacturing Sulamite is a trade secret.

"In igneous rock, and in hard sedimentary or metamorphic formations, diamonds are without competition; but in soft sandstone, soft limestone, shale and other relatively soft sedimentary strata, Sulamite has been used effectively. In such ground the lower first cost offsets the slower progress and higher cost per foot drilled.

"It has a great additional advantage in cavey or pockety formations where the loss or damage of a diamond is a hazard.

"In many oil country rocks, and in some coal formations, the use of Sulamite has given satisfactory progress at low cost."

R. J. ROGERS DIES

R. J. Rogers, who represented the Kansas City Hay Press Co. in Tulsa, died Tuesday, December 25, at his home in Tulsa.

OPENS TULSA BRANCH OFFICE

The Wickwire Spencer Sales Corp., a subsidiary of the Wickwire Spencer Steel Co., has opened a branch office in the Philtower Building, Tulsa, under the direction of J. J. Lovell, district sales manager. Besides Wickwire Spencer oil field ropes the sales corporation will distribute B. F. Goodrich mechanical rubber goods and Philadelphia cordage, bull-ropes and cathead lines. Assisting Mr. Lovell will be O. C. Elliott and Dean Rollans, in Tulsa; Gene Sidwell, in Shawnee, Okla.; R. R. Jones, Jr., in Abilene, Tex.; L. R. Austin, in Wichita, Kans., and Ernest Megenity, in Midland, Tex.

IDECO BULL HOIST HAS POSITIVE-ACTING BRAKE

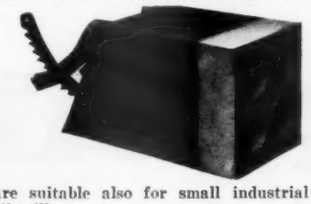
Among new equipment placed on the market in 1928 by the International Derrick & Equipment Co. were the IDECO patented bull hoists. The bull hoist is a type of bull wheel, its principal feature being an air-cooled, positive-acting brake, mounted upon the bull wheel post, facilitating adjustment of the brake band and permitting greater leverage action with less manual effort. A reversible brake band is lined with Johns-Manville folded and compressed asbestos brake lining. Other features are the patented remova-

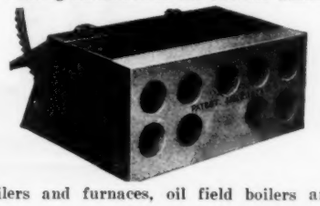
ble gudgeons and the deep "V" one-piece tug rim with rolled edges. Shafts are in all standard sizes, diameters and thicknesses. Rope dogs and helpers are standard equipment.

Two types of bull hoist are manufactured, one with a single brake and another with two brakes. The brakes on the double braked wheel are the same as the one on the single braked hoist. They are coacting and operate from a single brake lever. On the double braked wheel a triple tug rim is used.

METTLER COMPANY HAS THREE NEW SIZES OF BURNERS

The Lee B. Mettler Co., Los Angeles, Calif., combustion engineers and manufacturers of gas burners, have developed three new sizes of burners, which are illustrated herewith. These burners, built on the Mettler multi-unit multi-jet principle, are easy to install and operate and according to the manufacturer will produce the highest efficiency obtainable from the combustion of gas. It is said they will last almost indefinitely, as the refractory mixing block protects the cast-iron part of the burner from the heat in the furnace and there are no parts of the burner to wear out or get out of order. While used chiefly for house heating installations the Mettler burners



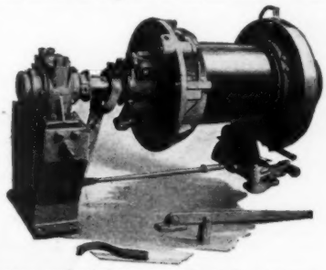


are suitable also for small industrial boilers and furnaces, oil field boilers and oil stills.

REVERSE RIG DESIGNED FOR HEAVY DUTY WORK

A new reverse rig, incorporating Timken tapered roller bearings and designed for heavy duty work, has been added to the line of reverse rigs manufactured by the Joseph Reid Gas Engine Co., Oil City, Pa.

This rig, designated as the No. 40, incorporates the latest improvements in reverse rig construction. Timken bearings are used throughout at all bearing points including the outerbearing, pulley, brake wheel and reverse pinion mounting. The clutch is the Reid band type, with 24-inch diameter friction and 6-inch band. The shaft is 4½ inches in diameter. The



gears and pinions are of steel, with machine cut teeth.

The use of Timken bearings with their tapered construction, making possible the continuous and positive absorption of both radical and thrust loads, is particularly advantageous. The construction throughout is dust proof and oil tight, which reduces lubricating expense. The reduction of friction with resultant saving in power is also important.

The entire rig is designed for heavy duty installations. It can be furnished with an extension shaft, fitting it for drive by high speed engine or electric motor.

BUSINESS NOTES

The Pure Oil Co. is installing at its grease manufacturing plant in Marcus Hook, Pa., large Patterson jacketed mixers for the making of grease products.

N. H. Spencer has joined the Dallas, Tex., sales force of the Wagner Electric Corp., St. Louis, Mo.

The Murray Tool & Supply Co. is stocking a complete line of fitting, valves, pumping equipment, etc., in Cleveland, Okla.

TRADE LITERATURE RECEIVED

The Delta-Star Electric Co., Chicago, has issued a bulletin on Sumpter compression type connectors for equipment leads.

The nature of acetylene gas is explained by W. F. Stoody in the current number of Fusion Facts in continuation of his "Short Course in Welding." Fusion Facts is published by the Stoody Co., Whittier, Calif.

The fourth edition of its bulletin, "Manuel of Electrical Testing," has been prepared by the Wagner Electric Corp., St. Louis, Mo. The bulletin deals with testing single-phase and polyphase motors and testing transformers for core loss, copper loss, polarity, insulation, temperature rise and efficiency.

TWO MANAGERS APPOINTED

H. L. R. Emmet has been appointed manager of the Erie, Pa., works of the General Electric Co., and J. E. Brobst manager of the Bloomfield, N. J., plant. They succeed Matthew Griswold at Erie and C. D. Knight at Bloomfield, both of whom retired from active service on January 1 because of ill health.

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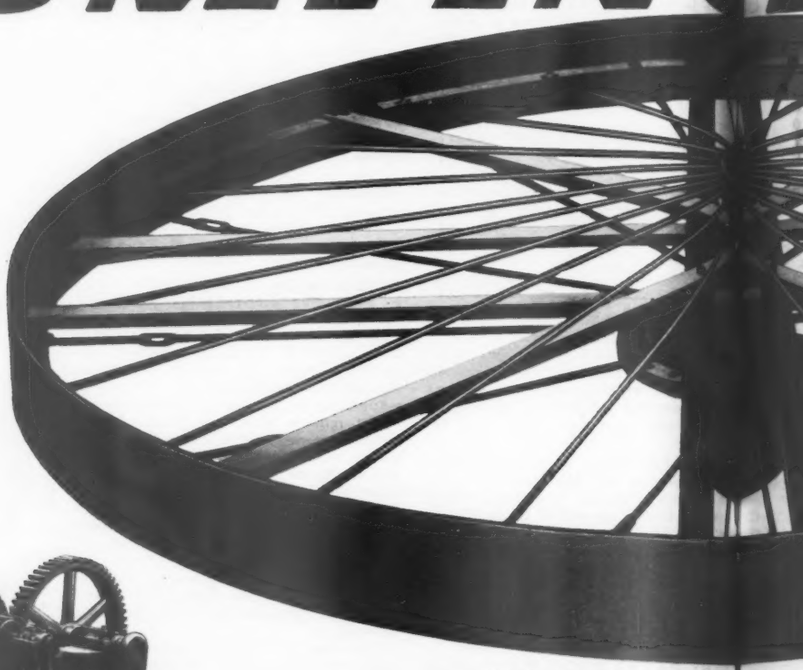

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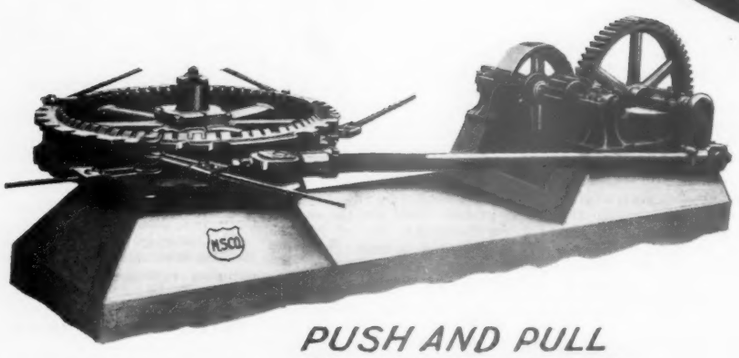

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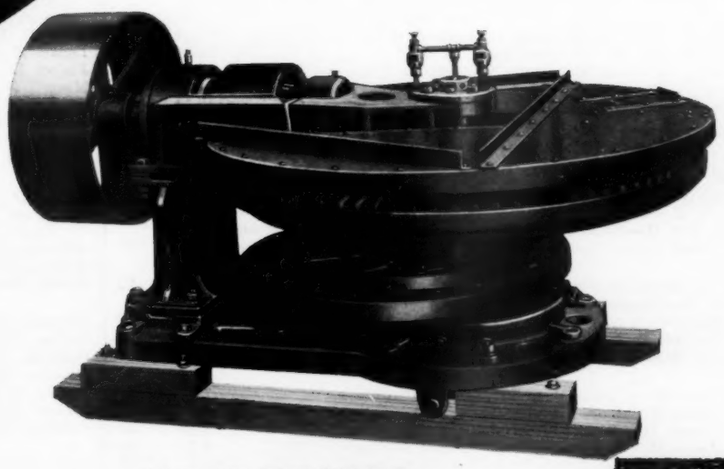

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for

Cracking Units Refineries
Gas Engines Compressors
Pumps Vapor Lines
Crane Flanges, etc.

COPPER ALUMINUM
ARMCO MONEL

McCord Radiator & Mfg. Co.
DETROIT

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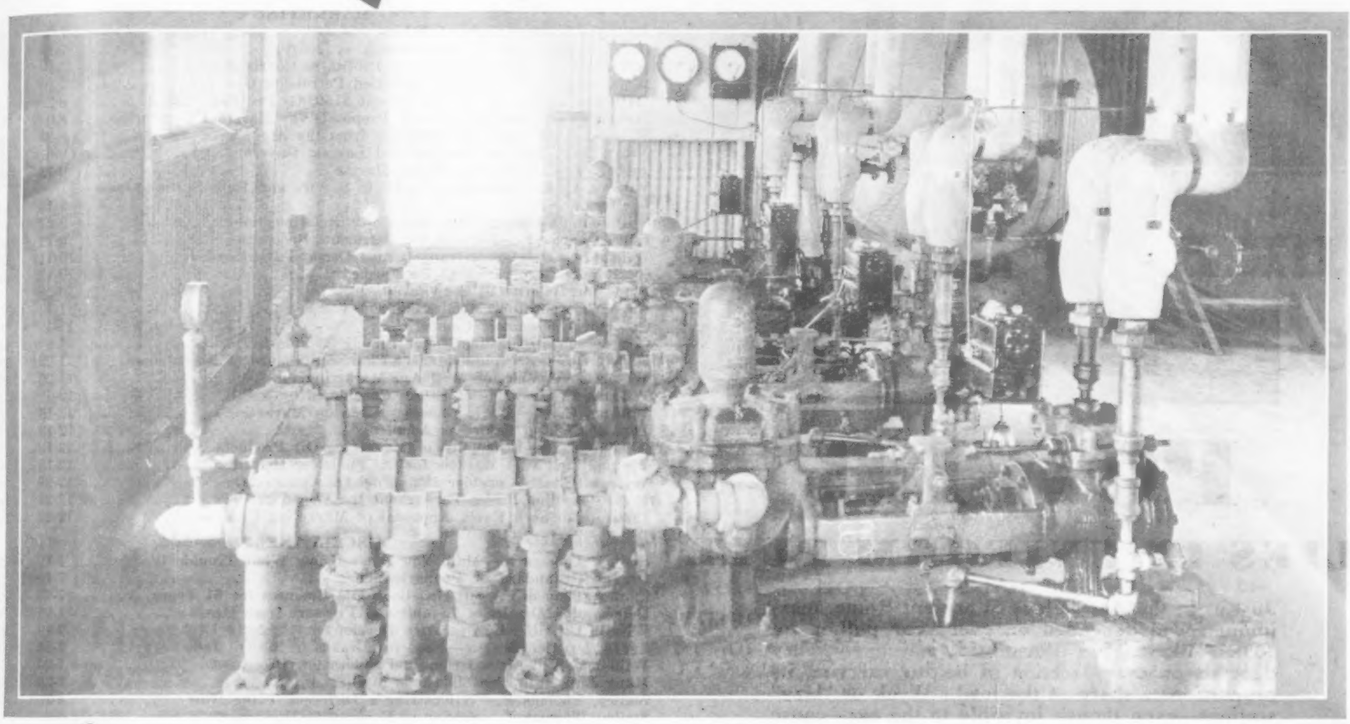

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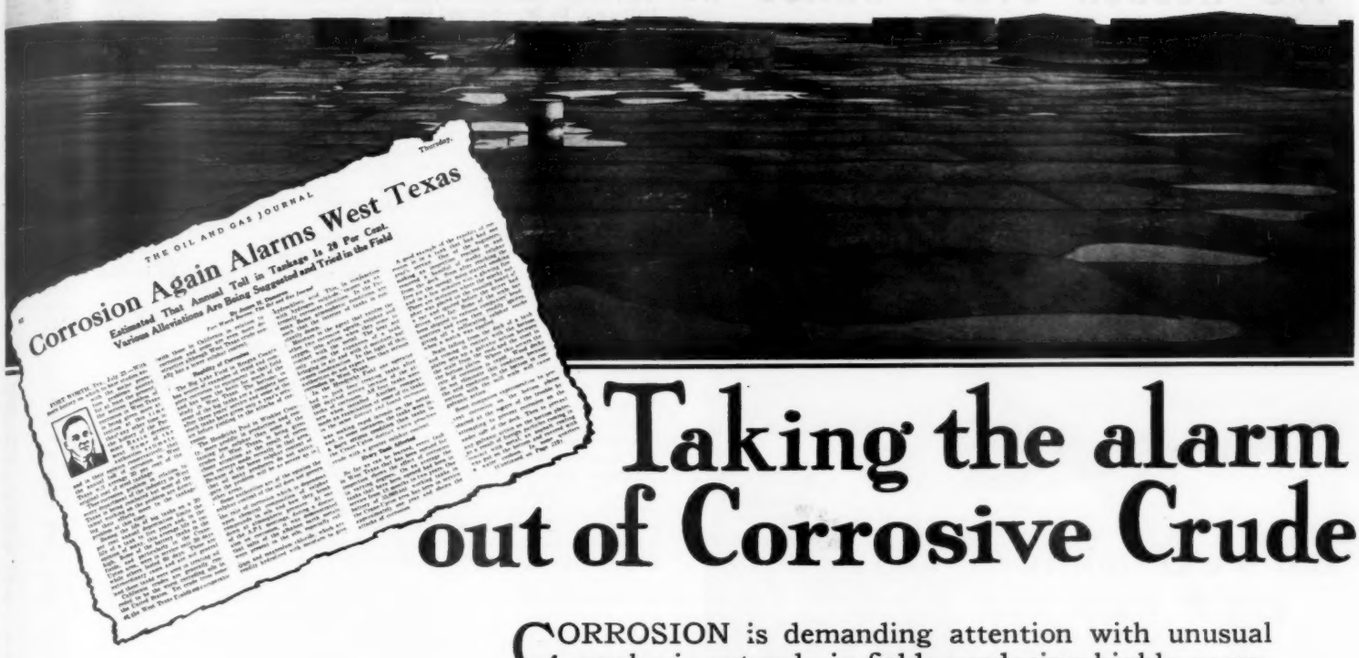
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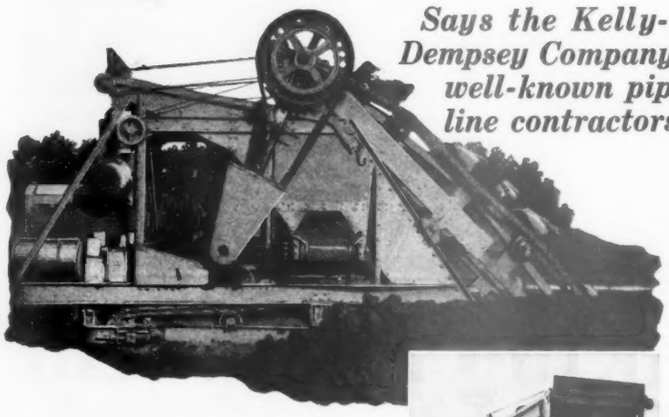

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Billions of Bubbles

GONE is the year 1928, with its memorable Hoover-Smith campaign, its Kellogg Anti-War Treaty, its transoceanic flights. These events will live in history.

So likewise will live in history—gasoline history—the unprecedented production of 1928. A telling factor in this large production is Campbell equipment.

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P.O. DRAWER 669
LONG BEACH, CAL.
MID-CONTINENT AGENCY STEARNS-ROGER MFG. CO. DENVER

Originators of Oil-Froth Absorbers

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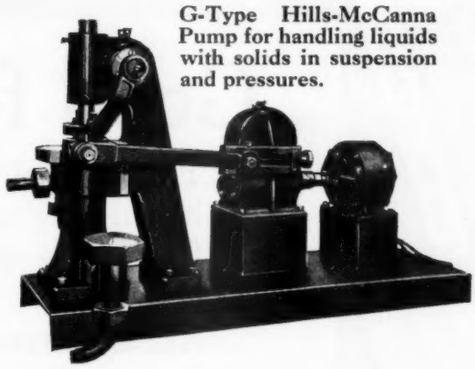

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WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 40)

W. S. Hillyer's No. 1 McGregor, C NW Sec. 14, Blk. 81 ... Shut down 385 ft.
Scott & Dittman's No. 1 Miller, 1,160 ft. N and 2,480 ft. E Sec. 1, Blk. 97, Public School Land ... Rainbow 1,058 ft.; 300 ft. sulphur water 1,725 ft.; shut down for casing 1,767 ft.

DAWSON COUNTY

Magnolia Petroleum Co.'s No. 1 W. A. Jetter, C Sec. 1, Blk. 34, Twp. 4n ... Top salt 1,650 ft.; top lime 3,560 ft.; set 10-in. casing 1,815 ft.; total depth 3,508 ft.

EL PASO COUNTY

Sillix et al's No. 1 W. D. Malone, Sec. 46, James M. Day Sur. ... Set 12½-in. casing 1,010 ft.; shut down 1,010 ft.

FISHER COUNTY

Bickerstaff et al's No. 1 McWhirter, 2,640 ft. E and 150 ft. N of SW cor. of Sec. 295, Blk. 2, H.&T.C. Sur. ... Shut down 1,820 ft.
Cranfill & Reynolds' No. 1 Brown, 330 ft. S and E of NW cor. Sec. 4, W. E. Richardson Sur. ... Spudding.
Cranfill & Reynolds' No. 2 Willinkham, 1,980 ft. S and 2,310 ft. W of NE cor. Sec. 207, B.B.B.&C.R.R. Sur. ... Location.
Cranfill & Reynolds' No. 1 Fleming, 1,980 ft. S and 2,310 ft. E of NW cor. Sec. 207, B.B.B.&C.R.R. Sur. ... Location.
Dunnegan Bros.' No. 1 T. Henry, 330 ft. N and E of SE cor. Sec. 21, George W. Burdett Sur. No. 322, but in Sec. 4, Robert Hibbitt Sur. No. 331 ... Shut down 1,475 ft.
Hucony Gas Co.'s No. 1 D. F. Maberry, 1,078 ft. S and 188 ft. W of NE cor. Elijah Bell Sur. No. 327 ... Hole full salt water 2,735 ft.; shut down 2,840 ft.
Texas-Phillips' No. 1 Hall, 330 ft. N and W of SE cor. Sec. 6, Blk. 20 ... Location.
Thompson et al's No. 1 Newman, 1,320 ft. N and 660 ft. W of SE cor. of SW Sec. 44, Blk. 1, H.&T.B. Sur. ... Drlg. 1,620 ft.

GAINES COUNTY

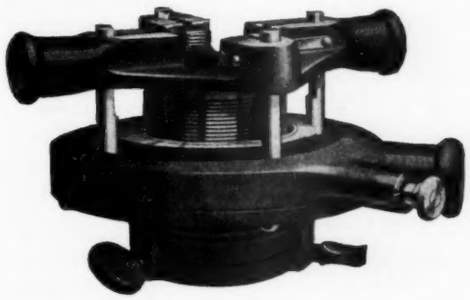
Pure Oil Co.'s No. 1 A. A. Williamson, 1,650 ft. S and 330 ft. W of NE cor. Sec. 110, Blk. H, D.&W.R.R. ... Drlg. 2,160 ft.

GLASSCOCK COUNTY

Chas. Daniels et al's No. 1 Meek, 2,310 ft. W and 1,60 ft. N of SE cor. Sec. 7, Blk. 34, Twp. 3s, T.&P. Sur. ... Spudded and shut down.
Gibson & Johnson's No. 1 Mann, C NW Sec. 6, Blk. 33, T.&P. Sur. ... Drlg. 905 ft.
R. R. Penn's No. 1 Hughes-Johnson, C NW Sec. 45, Blk. 30, W.&N.W. Sur. ... Drlg. 585 ft.
Marland Prod. Co. et al's No. 7-A Settles, 2,310 ft. S and W of NE cor. Sec. 158, Blk. 29, W.&N.W. Sur. ... Location.
Merriweather Oil Co.'s No. 2 McDowell, 1,492 ft. N and 150 ft. E of SE Sec. 35, Blk. 34, Twp. 2s, T.&P. Sur. ... Drlg. 1,990 ft.
Sprague Oil Co.'s No. 4 Roberts, 1,650 ft. S and 330 ft. E of NW cor. Sec. 156, Blk. 29 ... Shut down 1,949 ft.
World Oil Co.'s No. 1-C McDowell, 1,650 ft. S and 2,310 ft. W of NE cor. Sec. 21, Blk. 34 ... Spudded and shut down.
White Eagle Oil & Ref. Co.'s No. 1 Dunbar, C of NW Sec. 46, Blk. 34, Twp. 4s, T.&P.R.R. Sur. ... Drlg. 465 ft.

HOWARD COUNTY

Amerada Pet. Corp. and Rycade Oil Corp.'s No. 2 Dora Roberts, 990 ft. S and 2,240 ft. W of NE cor. Sec. 137, Blk. 29 ... Fishing 2,479 ft.
Amerada Pet. Corp. and Rycade Oil Corp.'s No. 3 Dora Roberts, 990 ft. S and W of NE cor. Sec. 137, Blk. 29 ... Shut down 2,922 ft.
Amerada Pet. Corp. and Rycade Oil Corp.'s No. 4 Dora Roberts, 330 ft. N and 2,310 ft. E of SW cor. Sec. 128, Blk. 29, W.&N.W. Sur. ... Drlg. 2,950 ft.
Amerada Pet. Corp. and Rycade Oil Corp.'s No. 5 Dora Roberts, 330 ft. N and 2,310 ft. W of SE cor. Sec. 128, Blk. 29 ... Drlg. 2,963 ft.
Amerada Pet. Corp. and Rycade Oil Corp.'s No. 6 Dora Roberts, 330 ft. N and 990 ft. W of SE cor. Sec. 128, Blk. 29, W.&N.W. Sur. ... Set 6-in. casing 2,950 ft.
California's Co.'s No. 1 Settles, 2,310 ft N and W of SE Sec. 158, Blk. 28, W. & N. W. Sur ... Drlg. 390 ft.
Cosden & Co.'s No. 2 Dora Roberts-D, 1,650 ft. S and 990 ft. W of NE cor. Sec. 157, Blk. 29, W.&N.W. Sur. ... Rigging up standard tools 2,965 ft.
F. H. E. Oil Co. et al's No. 7-B Dora Roberts, 330 ft. S and E of NW Sec. 137, Blk. 29 ... Fishing 2,600 ft.
F. H. E. Oil Co.'s No. 8-B Dora Roberts, 2,310 ft. S and E of NW cor. Sec. 137, Blk. 29, W.&N.W. Sur. ... Shut down 2,931 ft.
F. H. E. Oil Co.'s No. 10-B Dora Roberts, 330 ft. S and 310 ft. E of NW cor. Sec. 137, Blk. 29 ... Swabbing 2,964 ft.
F. H. E Oil Co.'s No. 11-B Dora Roberts, 1,700 ft. S and 2,310 ft. E of NW cor. Sec. 137, Blk. 29, W.&N.W. Sur. ... Shut down 250 ft.
F. H. E. Oil Co.'s No. 5-D Dora Roberts, 2,310 ft. S. and 1,650 ft. E of NW cor. Sec. 136, Blk. 29 ... Set 6-in. casing 2,930 ft.; shut down.
Green Oil Co. et al's No. 1 J. W. Furrh, C SW cor. Sec. 11, Blk. 31 ... Top lime 2,100 ft.; set 6-in. casing 2,865 ft.; 500 ft. sulphur water; drlg. 3,300 ft.; hole full water.
Green et al's No. 1 Slaughter, C SW Sec. 32, Blk. 31, Twp. 3n, T.&P.R.R. Sur. ... Location.
L. C. Harrison et al's No. 1 G. M. Podge Est., SE cor. Sec. 9, Blk. 30, Twp. 1s, T.&P. Sur. ... Hole full salt water 1,475-1,505 ft.; top lime 1,825 ft.; show oil 2,972-74 ft.; hole full fluid 3,257 ft.; total depth 3,257 ft. plugged back to 3,000 ft. to shoot.
Henshaw Oil Corp.'s No. 2-A Settles, 1,884 ft. E and 330 ft. S and NW cor. Sec. 6, Blk. 32, Twp. 2s, T.&P. Sur. ... Swabbing at 2,292 ft.
Howard County Oil Corp.'s No. 1 Kloh, 990 ft. S and 1,170 ft. E of NW cor. Sec. 5, Blk. 32, Twp. 2s, T.&P.R.R. Sur. ... Fishing 1,005 ft.
Laurel & Cosden's No. 8 Dora Roberts, 380 ft. W and 2,310 ft. N of SE cor. Sec. 136, Blk. 29 ... Rig.
Laurel & Cosden's No. 9 Roberts, 1,650 ft. N and 330 ft. W of SE cor. Sec. 136, Blk. 29, W.&N.W. Sur. ... Location.
Louisiana Oil Corp.'s No. 2 Settles, 2,306 ft. E and 330 ft. S of NW cor. Sec. 6, Blk. 32, Twp. 2s, T.&P. Sur. ... Rigging up standard tools 2,000 ft.; total depth 2,302 ft.
Magnolia Pet. Co.'s No. 12 Dora Roberts, 1,650 ft. N and 330 ft. S of SW cor. Sec. 136, Blk. 29, W.&N.W. Sur. ... Drlg. 2,065 ft.
Magnolia Pet. Co.'s No. 13 Dora Roberts, 2,440 ft. N and 1,650 ft. E of SW cor. Sec. 136, Blk. 29, W.&N.W. Sur. ... Rigging up standard tools 2,927 ft.; shut down.
Magnolia Pet. Co.'s No. 16-D Dora Roberts, 990 ft. N and 1,650 ft. E of SW cor. Sec. 136, Blk. 29, W.&N.W. Sur. ... Rigging up standard tools 2,440 ft.
Marland Prod. Co.'s No. 2-C Chalk, 330 ft. S and 1,650 ft. W of NE cor. Sec. 140, Blk. 29 ... Rigging up.
Marland Oil Co.'s No. 3-C Chalk, 660 ft. S and 2,440 ft. W of NE cor. Sec. 140, Blk. 29, W.&N.W. Sur. ... Location.
Marland Prod. Co.'s No. 4-E Chalk, 990 ft. N and 330 ft. Marland-Texon Prod. Co.'s No. 1 Eason, 2,638 ft. S and E of SW cor. Sec. 124, Blk. 29, W.&N.W. Sur. ... Cem. 6⅝-in. casing 1,746 ft.
2,513 ft. E of NW cor. Sec. 6, Blk. 32, Twp. 2s, T.&P. Sur. ... Shut down 2,129 ft.
Marland & Group One Co.'s No. 6-A Settles, 2,665.5 ft. S and 2,513.2 ft. E of NW cor. Sec. 6, Blk. 32, Twp. 2s, T.&P. Sur. ... Set 8-in. casing 2,125 ft.; rigging up standard tools; top pay 2,220 ft.
Marland Oil Co.'s No. 8-A Settles, 2,310 ft. N and E of SW cor. Sec. 158, Blk. 29, W.&N.W. Sur. ... Location.
Phillips Pet. Co.'s No. 1 J. Thomas, 330 ft. N and W of SE cor. Sec. 13, Blk. 33, Twp. 1n, T.&P. Sur. ... Topped lime 3,030 ft.; drlg. 3,445 ft.
Pure Oil Co.'s No. 9 Chalk, 990 ft. N and W of SE cor. Sec. 125, Blk. 29, W.&N.W. Sur. ... Rigging up.
Shell Pet. Corp.'s No. 1 Settles, 990 ft. E and 330 ft. N of SW cor. Sec. 135, Blk. 29 ... Drlg. 1,631 ft.
Schermerhorn Oil Co.'s No. 3 Dora Roberts, 1,650 ft. S and 990 ft. W of NE cor. Sec. 137, Blk. 29 ... Shut down 2,365 ft.
Schermerhorn Oil Co.'s No. 4 Dora Roberts, 990 ft. S and W of NE cor. Sec. 157, Blk. 29 ... Shut down 2,586 ft.



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THE TOLEDO PIPE THREADING MACHINE CO., TOLEDO, OHIO

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NAME _____

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STATE _____

Sun Oil Co.'s No. 6 Settles, 915 ft. N and 330 ft. W of SE cor. Sec. 135, Blk. 29, W.&N.W. Sur.—Spudding 50 ft.
Taylor-Link Oil Co.'s No. 2 Kloh-Rumsey, 1,884 ft. E and 150 ft. N of SW cor. Sec. 3, Blk. 32, Twp. 2-S, T.&P.R.R. Sur.—Shut down 755 ft.
Texon O. & L. Co.'s No. 1 Quinn, 330 ft. N and W of SE cor. Sec. 11, Blk. 34, Twp. 1s—Straightening crooked hole 3,455 ft.; drlg. 3,670 ft.; hole full salt water; shut down 3,750 ft.
Ward Oil Co.'s No. 3 Dora Roberts, 2,310 ft. N and E of SW cor. Sec. 137, Blk. 29—Rigging up standard tools 1,950 ft.
Ward Oil Co.'s No. 4 Dora Roberts, 2,310 ft. N and E of SW cor. Sec. 137, Blk. 29, W.&N.W.R.R. Sur.—Drlg. 2,980 ft.
Ward Oil Co.'s No. 5 Roberts, 1,650 ft. N and 330 ft. E of SW cor. Sec. 137, Blk. 29—Drlg. 1,763 ft.
Witherspoon et al's No. 1 Kloh-Rumsey, 2,970 ft. E and 150 ft. N of SW cor. Sec. 3, Blk. 32, Twp. 2s, T.&P.R.R. Sur.—Derrick.
Witherspoon & Glascock's No. 1 Settles, 300 ft. S and 2,979 ft. W Sec. 6, Blk. 32, T.&P. Sur.—Drlg. 1,596 ft.

HUDSPETH COUNTY

American Land Co.'s No. 1 Lockhart & Roseborough, C SE Sec. 5, School Blk. 21—Total depth 260 ft.; rebuilding rig.
California Co.'s No. 1 University, 3,821 ft. N and 2,554 ft. E of SW cor. Sec. 19, Blk. E.—Total depth 352 ft.; cleaning out.
Western States Oil Co.'s No. 1 Moore, C SE Sec. 16, Blk. 71, Twp. 6, T.&P. Sur.—Straightreaming 2,700 ft.; total depth 2,740 ft.; fishing pipe.
Western States Oil Co.'s No. 1 Gardner & Moseley, NE NW Sec. 12, Blk. 18—Hole full water 2,945 ft.; underreaming 8¼-in. casing at 2,840 ft.; trying to get water shut off; shut down 3,140 ft.; trying to pull casing.

IRION COUNTY

Fuhrman Pet. Co.'s No. 1 J. O. Suggs, lease 1, C SE Sec. 3,024, Blk. 24, H.&T.C. Sur.—Location.
Fuhrman Pet. Co.'s No. 1 J. D. Suggs, Lease 2, C SW Sec. 3,029, Blk. 24, H.&T.C. Sur.—Location.
Fuhrman Pet. Co.'s No. 1 J. D. Suggs, Lease 3, C SE Sec. 3,009, Blk. 24, H.&T.C. Sur.—Moving in material.
Kimbrough & Flinchbaugh's No. 1 Tankersley, 160 ft. S and 200 ft. W of NE cor. Sec. 712, Ford Willig Sur.—Spudding.
Kimbrough & Tuel's No. 1 J. M. Nutt, 1,920 ft. S, 200 ft. E of NW cor. Sec. 5, Gonzales Co. School Land—Set 6-in. casing 1,360 ft.; show oil and gas; shut down 1,400 ft.
Mertzon Interests' No. 1 Harlan Horney, 2,440 ft. N and 150 ft. from W lines of Sec. Z, Blk. 3, H.&T.C. Sur.—Location.
Signal Oil Co.'s No. 1 Suggs, Sec. 9, Blk. H, T.C.R.R. Sur.—Top salt 805 ft.; hole full sulphur water 1,865 ft.; shut down 3,155 ft.
F. E. Webb et al's No. 1 J. M. Nutt—Shut down 2,510 ft.
Wesley West et al's No. 1 J. D. Suggs, SE NW SE Sec. 19, Blk. 7, H.&T.C. Sur.—Top pay 3,368 ft.; swabbed 35 bbls. oil and 40 bbls. water 35.8 gravity oil; drlg. 4,615 ft.
C. J. Wrightsman's No. 1 Sawyer, 1,320 ft. from N. and W lines Sec. 3,032, Blk. 24, H.&T.C. Sur.—Location.

JEFF DAVIS COUNTY

J. K. Hughes Dev. Co.'s No. 2 Means, 1,622 ft. N line, 600 ft. W line Sec. 345, H.&T.C. Sur.—Show gas 3,271 ft.; black lime; slight show gas; cleaning out 3,279 ft.; total depth 3,298 ft.

JONES COUNTY

Anna Belle Oil Co.'s No. 1 Bickley, 330 ft. S and E of NW cor. SE NE Sec. 50, Blk. 18, T.&P. Sur.—Rig.
W. G. Clark et al's No. 1 J. T. Thomas, 350 ft. S and 103 ft. W of extreme NE cor. Sec. 13, Blk. 19—Shut down 2,587 ft.
E. P. Campbell et al's No. 2-C Herndon, 330 ft. N and E of SW cor. NW Sec. 6, M.E.P.&P. Sur.—Drlg. 410 ft.
Cosden & Co.'s No. 1 Brown, 200 ft. N and 300 ft. W of SE cor. J. H. Grayson Sur.—Location.
Cosden & Herbert Oil Co.'s No. 1 Bickley, 320 ft. N and 319 ft. E of SW cor. S half NW Sec. 50, Blk. 18, T.&P. Sur.—Rig.
Cosden, Herbert et al's No. 6 Bickley, 330 ft. S and 1,278 ft. W of NE cor. S half NW Sec. 50, Blk. 18, T.&P. Sur.—Drlg. 2,430 ft.
Grisham & Hunter's No. 1 Tiner, 311 ft. N and 330 ft. W of SE cor. Gabriel Zumwalt Sur.—Location.
Mid-Sun Oil Corp.'s No. 1 George Hoehn, 660 ft. N and W of SE cor. SE 40 ac. of N 160 ac. of W 320 ac. of A. Crain Sur. A-152—Drlg. 1,285 ft.
McNeeley et al's No. 1 Roscoe Bland, 1,175 ft. N and 240 ft. W of SE cor. Subdivision 20, A-164, DeWitt Co. School Land—Spudded and shut down.
Phillips Pet. Co.'s No. 1 Campbell, 330 ft. S and E of NW cor. SE 41.5 ac. of S 166 ac. of N 180 ac., 4½ of Sec. 15, Blk. 19, T.&P.R.R. Sur.—Drlg. 1,020 ft.
Phillips Pet. Corp.'s No. 5 J. C. Mason, 990 ft. S and 330 ft. W of NE cor. W half NE Sec. 18, Blk. 19, T.&P. Sur.—Drlg. 2,360 ft.
Phillips Pet. Co.'s No. 1 Winters, Sec. 19, Blk. 19, T.&P. Sur.—Drlg. 2,285 ft.
Roberts Oil Corp.'s No. 7 Grayson, 1,470 ft. N and 330 ft. W of SE cor. Sec. 13, Blk. 19, T. & P. Sur.—Drlg. 2,310 ft.
Sedwick O. & G. Co.'s No. 1 Routh, 1,250 ft. N, 2,500 ft. W SE cor. 299-ac. tract, Austin & Williams Sur. 355-A-7—Rig.
Sinclair O. & G. Co.'s No. 2 Buckley, 975 ft. S, 320 ft. E of NW cor. N half NE cor. Sec. 50, Blk. 18, T.&P. R.R. Sur.—Shot with 25 qts. 2,505-13 ft.; Total depth 2,830 ft.; underreaming 2,830 ft.
W. G. Stough et al's No. 1 J. P. Willis, J. C. Patterson Sur. No. 2—Shut down 1,740 ft.
The Texas Company's No. 3 Laura Carter, 330 ft. S and W of NW cor. Carter 173.5-acre tract, Sec. 13 Blk. 19, T.&P. Sur.—1,500 ft. oil in hole from 2,487-92 ft.
U. L. Tomberlin's No. 1 Horn, 1,980 ft. N and 600 ft. E of SW cor. of N 502 ac. of Penney Sur. A-283—Spudded and shut down.
Woods & Williams' No. 1 M. A. Parr, about 500 ft. S and E of NW cor. G. A. Kirkland Sur. A-507—Shut down 2,370 ft.

LOVING COUNTY

Lockhart & Co.'s No. 1 H. L. Lepp, 330 ft. each way from S cor. of Sec. 3, Blk. 2, W.&N.W. Sur.—Drlg. 570 ft.

LYNN COUNTY

Miller et al's No. 1 May, 500 ft. N of C of S L of Sec. 10, Blk. 7, E.L.R.R. Sur.—Spudded and shut down.

MENARD COUNTY

Carpenter & Robbins' No. 1 Kothman, NW cor. SW SW Sec. 22—Shut down 600 ft.
Sorrells & Jackson's No. 1 F. Wilhelm, C NE Sec. 6, Blk. C, Brooks & Burleson Sur.—Drlg. 520 ft.

MIDLAND COUNTY

Shoup et al's No. 1 Roy Parks, C NW Sec. 34, Blk. 41, Twp. 2s, T.&P. Sur.—Top salt 1,700 ft.; cem. 8⅛-in. casing 2,770 ft.; show oil 3,330 ft.; shut down 4,980 ft.

MITCHELL COUNTY

California Co.'s No. 6 Foster, Lease 1, 990 ft. N and 2,310 ft. E of SW cor. Sec. 6, Blk. 29, Twp. 1s, T.&P. Sur.—Drlg. 1,800 ft.
E. P. Campbell et al's No. 1 Pond, 1,065 ft. W. 660 ft. N of SE cor. Sec. 79, Blk. 27, T.&P. Sur.—Rerun 12½-in. casing 730 ft.; drlg. 2,175 ft.
Magnolia Pet. Co.'s No. 6 Foster, 1,980 ft. N and E of SW cor. Sec. 17, Blk. 29, Twp. 1s, T.&P.R.R. Sur.—Location.
Simms Pet. Co.'s No. 1 Elwood, C SE of Sec. 29, Blk. 18, S.P.R.R. Sur.—Location.
Teas & Wheeler's No. 1 Radford, 1,320 ft. N and W of Sec. 1, Blk. 27, T.&P. Sur.—Fishing tools 3,335 ft.

NOLAN COUNTY

L. G. Bradstreet et al's No. 1 Kuteman, C NW Sec. 95, Blk. X, T.&P. Sur.—Rig.
Herbert Oil Co.'s No. 1 Pepper, C N half Sec. 32, Blk. 22, T.&P. Sur.—Show gas 3,160 ft.; hole full sulphur water 3,190-3,202 ft.; shut down 3,612 ft.
C. M. Root et al's No. 1 Simpson, 330 ft. S and W of NE cor. SE Sec. 33, Blk. 19, T.&P. Sur.—Run 12¾-in. casing 525 ft.; drlg. 1,525 ft.
W. E. O & R. Co.'s No. 1 Allyn, 600 ft. E and 1,720 ft. N of SW cor. Sec. 48, Blk. 20, T.&P. Sur.—Underreaming 10-in. casing to ft.; drlg. 2,480 ft.

PECOS COUNTY

Alexander & Lyle's No. 1 Myrtle Sellman, C SW SE Sec. 20, Blk. Z, T.S.Ry. Sur.—Top salt 814 ft.; top lime 1,40 ft.; 3,400,000 ft. gas from 1,61 26 ft.; spraying very little oil sulphur water 1,652 ft.; shu down 1,655 ft.
George Anderson's No. 1 University, C Sec. 11, Blk. 17—Top salt 1,030 ft.; shut down 1,9 ft.; 3,000,000 ft. gas.
M. H. Black's No. 1 P.V.O. Co., 2,310 ft. from SE and 1,650 ft. from SW lines Sec. 22, Blk. 10, H.&G.N. Sur.—Location.
California Co.'s No. 1 Smith, Lease 4, 1,010 ft. from N and E line Sec. 15, Blk. 194, G.C.&S.F. Sur.—Drlg. 708 ft.
M. C. Dibble & Hale's No. 1 Bonebrake, Sec. 115, Blk. 8, H.&G. W. Sur., elev. 2,555 ft.—Top lime 1,305 ft.; set 6-in. casing 1,610 ft.; shut down 2,0 ft.
Ditto Oil Co.'s No. 1 J. M. Montgomery, Sec. 104, Blk. 331, A-16,387—Shut down 660 ft.
Doran & McGee's No. 1 P.V.O. Co., 150 ft. from SE and SW lines Sec. 22, Blk. 10, H.&G.N. Sur.—Location.
Mauch & Kroger's No. 1 Holmes, Sec. 5, Blk. 178, T.C. Sur.—Shut down 1,010 ft.
McCarty Oil Co.'s No. 1 A. A. Gray, 1,520 ft. from S and 150 ft. from W lines Sec. 591, Abst. 3,010—Location.
Mid-Kansas Oil & Gas Co.'s No. 12-C Yates, 811 ft. from N and 871 ft. from W lines Sec. 60, Blk. 1, I.&G.N. R.R. Sur.—Drlg. 255 ft.
Mid-Kansas O. & G. Co.'s No. 27-B Yates, 250 ft. N and 845 ft. E from NW cor. Sec., 60, Blk. I, I.&G.N.R.R. Sur.—Drlg. 540 ft.
Phillips Pet. Co.'s No. 1 J. L. Nutt, 2,310 ft. from W and 330 ft. from S lines Sec. 9, Blk. 125,T.&St. L. Sur.—Drlg. 565 ft.
Stein & McGee's No. 1 Louis Paterson, 150 ft. SE of NW line, 150 ft. NE of SW Sec. 34, Blk. 10, H.&G.N.—Location.
B. J. Spikes' No. 1 George Brown—Shut down 700 ft.
Schumaker et al's No. 1 Williams et al, 330 ft. N of middle of S line Sec. 1, Blk. 117, G.C.&F.F.—Shut down 492 ft.
Southern C. O. P. Co.'s No. 1 Scharbauer Cattle Co., SW cor. Sec. 21, Blk. 134, T.&S.L. Sur.—Show gas 1,455-60 ft.; water 3,17 ft.; fishing 3,380 ft.
Talbot & Ditman's No. 1 Unsicker, 1,320 ft. from E and 660 ft. from S lines, Sec. 25, Blk. 10, H.&G.N.—Fishing 708 ft.
Transcontinental Oil Co.'s No. 1 University, NE NW SW Sec. 18, Blk. 18—Top lime 1,155 ft.; fishing 4,130 ft.
Trees Oil Co.'s No. 1 Trees, 330 ft. from N and E L of Sec. 63, Blk. 8—Location.
Yates Ranch Dev. Co.'s No. 1 Yates-C, Lot 51, Sec. 70, Blk. 1, H.&G.N.R.R. Sur.—Drlg. 1,550 ft.
World Oil Co.'s No. 1 Kloh, Sec. 47, Blk. 45, Twp. 8, T.P.R.R. Sur., elev. 2,810 ft.—Shut down 3,105 ft.

PRESIDIO COUNTY

Eastland Oil Co.'s No. 1 Smith, C Sec. 17, Certificate 463, or Blk. 351, G.C.&S.F.R.R.—Spudded and shut down.
Phillips Pet. Co., Empire G. & F. Co., Delmar Oil Co. and C. E. Miller's No. 1 Tootle Est., C NE Sec. 75, Blk. 3, D.&P.R.R. Sur.—Show wet gas 1,270 ft.; drlg. lime 1,277 ft.
L. C. Brite's No. 1 Lee, Sec. 50, Blk. 12, G.H.&S.A. Sur., center of section—Shut down 4,152 ft.; show oil 4,130 ft.; set 6-in. casing 4,152 ft.; shut down.

REAGAN COUNTY

The California Co.'s No. 5 University, 2,310 ft. from N and E lines Sec. 16, Blk. 7, University Land—Bldg. rig.
Texon O. & L. Co.'s No. 1-B University Group 1—Top pay 6,250 ft.; hole full of oil; well made two small heads; oil sand 8,482 ft.; total depth 8,525 ft.; flowing 1,400 bbls. oil, 13,000,000 ft. gas daily.

REEVES COUNTY

D. P. Davis et al's No. 1 H. C. McCart, 300 ft. S and 200 ft. W of NE cor. S half NW Sec. 26, Blk. C-18—Shut down 25 ft.
Exploration Co.'s No. 1 A. A. Kinney, 1,500 ft. W of NE cor. Sec. 26, Blk. C-18, Public School Land, elev. 2,847 ft.—Total depth 2,900 ft.; shut down.
Dr. Kits's et al's No. 1 Kloh & Rumsey, 330 ft. N and W of SE cor. Sec. 5, Blk. 54, Twp. 5, T.&P. Sur.—Drlg. 1,010 ft.; set 8-in. casing 1,010 ft.
David R. Thompson's No. 1 A. A. Eddins—Swedging casing 5,658 ft.; pulling 5-in. casing.
Robert Penn et al's No. 1 Bowles, 2,310 ft. SW of NE cor. Sec. 36, Blk. 50, Twp. 8, T.&.P.R.R. Sur.—Drlg. 105 ft.
Lee O. White et al's No. 1 Kloh-Rumsey, 660 ft. S and E of NW cor. Sec. 5, Blk. 51, Twp. 10, T.&P. Sur.—Moving in material.

RUNNELS COUNTY

Boyce et al's No. 1 E. O. Lange, 2,300 ft. S and 6,900 ft. W of NE cor. Austin & Williams Sur. No. 262—Drlg. 550 ft.
Foster et al's No. 1 Currie, 1,866 ft. SE of NW line, 335 ft. SW of NE L. Gray Carroll Sur.—Moving in material.
R. D. Hamilton et al's No. 1 A. Spill, 1,320 ft. S and W of NE cor. A. Spill 891 acres, out of Thomas R. Webb Sur. 358—Shut down 100 ft.
McLean et al's No. 1 G. W. Clayton, 150 ft. N line, 270 ft. from W line Sec. 135, E.T.R.R.—Shut down 1,185 ft.
Nourse & Tilton's No. 1 R. A. Stokes, 200 ft. S, 600 ft. E of NW cor. G.C.&S.F. Sur. No. 2—Drlg. 2,175 ft.
R. B. Summers et al's No. 1 J. W. Reese, M. J. Parramore Sur. 26—Shut down 1,650 ft.
Union Oil Co. of Nevada's No. 1 W. E. Allen, 1,000 ft. N and W of SE cor. Sec. 1, H.E.&W.T. Sur.—Shut down 2,000 ft.
Vacuum Oil Co.'s No. 1 Brevard, 2,150 ft. N and 302 ft. E of SW cor. Lot 21, D. Diaz Sur. No. 532—Drlg. 2,224 ft.

SCHLEICHER COUNTY

J. F. Long and O. C. Long's No. 1 W. H. Williams, NE cor. Sec. 28, H.E.&W.T.R.R. Sur.—Shut down 275 ft.

SCURRY COUNTY

I. B. Mims et al's No. 1 J. J. Koonsman, Sec. 216, Blk. 2, H.&T.C. Sur.—Spudded and shut down.
G. E. Dieckman and R. B. Pender et al's No. 1 F. C. Davis, 1,000 ft. N and 1,770 ft. W of SE cor. of Sec. 275, Blk. 2, H.&T.C. Sur.—Shut down 1,120 ft.
F. & G. Oil Co.'s No. 1 W. L. Foster, C SE Sec. 20, Blk. 12, S.P.R.R. Sur.—Show oil 1,296-98 ft. and 1,356-58 ft.; drlg. 1,714 ft.

STONEWALL COUNTY

Sun Oil Co.'s No. 1 Reynor, 346 ft. S and W NE cor. Sec. 20, Blk. B, H.&T.C.—Shut down 3,390 ft.

SUTTON COUNTY

Phillips Pet. Co.'s No. 1 A. G. Holman, 2,310 ft. S and 330 ft. W NE cor. Sec. 25, C.C.S.D.&N.G.R.R. Sur.—Drlg. by tools 5,770 ft.
Southern C. O. P. Co.'s No. 1 Allison, 2,310 ft. S and 330 ft. W of NE Sec. 44, Blk. K, G.H.&S.A. Sur.—Rigging up.

TAYLOR COUNTY

Burnham et al's No. 1 A.M.Y.X.—Drlg. 1,780 ft.
Grisham-Hunter Corp.'s No. 1 Campbell, 330 ft. S and E of NW cor. SW Sec. 65, Blk. 19, T.&P. Sur.—Location.
Hurley Oil Co.'s No. 1 Mrs. A. R. Payne, 330 ft. N and E of SW cor. E 80 acres of NW Sec. 52, Blk. 19—Hole full water 2,145-62 ft.; drlg. 2,865 ft.
Mid-Continent Oil & Gas Co.'s No. 1 Taylor, 990 ft. W 215 ft. N SE cor. 100-ac. tract, Sec. 18, Guadalupe School Land Sur.—Drlg. 1,390 ft.

TERRELL COUNTY

Big Bend Oil Co.'s No. 1 Bassett, C NW Sec. 155, Blk. D, M.-K.-T.R.R. Sur.—Spudded and shut down.
Keck Pecos Trust Co.'s No. 1 Hamilton, C Sec. 6, Blk. D-7, E.L.&R.R. Sur.—Shut down 1,749 ft.
Mrs. J. B. McPhee's No. 1 Sam Belt, C Sec. 78, Blk. D-7, E.L.&R.R. Sur.—Location.
Milham Exploration Co.'s No. 1 Bassett, Sec. 76, Blk. Y, W. E. Robertson Sur.—Cem. 6⅝-in. casing 3,986 ft.; cem. cave 4,430 ft.

Woodley & Jones' No. 1 Pankenham, C SE NW Sec. 43, Blk. B-2, C.C.S.D.&N.G.R.R. Sur. — Shut down 150 ft.

TERRY COUNTY

Kingsland O. & P. Co.'s No. 1 Brownfield, C NW SW SW Sec. 7, Blk. 1-A, E.L.R.R. Sur. — Drlg. 4,835 ft.

TOM GREEN COUNTY

Collins et al's No. 1 Jones, CSL Sec. 646, Shaffer Sur. — Shut down 1,800 ft.

Fitzgerald & Taliaferro's No. 1 Bennett, C SW Sec. 1,628, E. H. Ringer — Shut down 1,920 ft.

F. P. Green et al's No. 1 fee, 575 ft. from N and 1,450 ft. from W lines Sec. 165, District 11, S.P.R.R. Co. Sur. — Drlg. 1,810 ft.

McLaughlin & Ridge's No. 1 R. Q. Holder, 3,140 ft. N and 80 ft.W SE cor. J. P. Parker Sur. (3,000-ft. test) — Show gas 1,757-59 ft.; shut down 3,005 ft.; hole full water 2,986 ft.

UPTON COUNTY

Champlin Oil & Ref. Co.'s No. 4 J. F. Lane, 990 ft. from S. 330 ft. from W line of SE Sec. 2, G.C.&S.F. Sur. — Top pay 1,940 ft.; pumping 40 bbls. oil and 470 bbls. water; shut down 1,979 ft.

Humble Oil & Ref. Co.'s No. 10 Ricker, 2,310 ft. from NE line and 3,280 ft. from NW line, Sec. 5, Mary Denton Sur. — Drlg. 1,250 ft.

Texas Pacific C. & O. Co.'s No. 12 Lane-A, 1,650 ft. N and 2,310 ft. E of SW cor. Sec. 5, G.C.&S.F. Sur. — Drlg. 1,973 ft.

YOAKUM COUNTY

Weekley Oil Corp.'s No. 1 Knight, C NW Sec. 791, Blk. D, John Gibson Sur. — Moving in material.

VAL VERDE COUNTY

Independent Operators' No. 1 Whitehead, SE SE Sec. 30, Blk. 4, I.&G.N. Sur., elev. 1,175 ft. — Drlg. 4,670 ft.; no report.

O. O. Owens' No. 1 Mills, Sec. 128, Blk. 1, I.&G.N. Sur., elev. 2,130 ft. — Gas sand 2,491-2,520 ft., tested 125,750 ft. gas; reset 8-in. 2,511 ft.; shut down 4,210 ft.

Producers Oil Co. et al's No. 1 Everett Bros., 2,310 ft. S and 330 ft. E of NW cor. Sec. 40, Blk. DB, C.C.S.D.&R.G.N.G. Sur. — Cem. 1,573 ft.

Dyar Bros. et al's No. 1 Wilson, 6,830 ft. N NE cor. Sec. 1, T.&P. Sur., thence 1,680 ft. E Sec. 115, Blk. E, G.C.&S.F. Sur. — Show oil and gas 1,053 ft.; shut down 2,420 ft.

Calvert Oil Corp.'s No. 1 Bassett, C NE Sur. 47, Blk. Y. — Set 15½-in. casing 767 ft.; set 10-in. casing 1,510 ft.; shut down 1,636 ft.

WARD COUNTY

E. B. Loveiace et al's No. 1 Redman, 1,980 ft. NE of SW line and 1,980 ft. SE of NW line, Sec. 162 Blk. 34, H.&T.C.R.R. — Spudding and shut down.

Prairie O. & G. Co.'s No. 1 Sealy Est. ,1,320 ft. S and W Sec. 95, Blk. A, G.M.M.B.&A. Sur. — Top salt 1,073 ft.; 5,000,000 ft. gas 2,526 ft.; gas decreased to 2,000,000 ft. at 2,637 ft.; hole full sulphur water 3,450 ft.; 5,000,000 ft. gas 2,526 ft.; shut down 3,505 ft.; trying to complete as gasser.

Rector Oil Co.'s No. 1 Johnson, 1,150 ft. NW, 5,160 ft. NE Sec. 10, Blk. 32, H.&T.C. — Top salt 745 ft.; 2,000 ft. salt water in hole ,133-35 ft.; total depth 2,501 ft.; straightreaming.

Shipley et al's No. 1 Hazlett, 2,310 ft. NE and 2,310 ft. SE Sec. 17, Blk. 5, H.&T.C. — Top salt 727 ft.; sand pay 2,480-81 ft.; averaged 115 to 120 bbls. daily.

Talbot, Dittman & Atlantic O. P. Co.'s No. 1 Dorr, 1,320 ft. from SE line and 660 ft. from SW line of Sec. 9, Blk. 5, H.&T.C.R.R. Sur. — 3 bbls. water per hr. 910 ft.; set 10-in. casing 770 ft.; drlg. 2,380 ft., sandy lime and anhydrite.

WINKLER COUNTY

Amerada Pet. Corp.'s No. 2 Daugherty, SW cor. SE Sec. 3, Blk. 74 — Cem. 6-in. casing 2,657 ft.; coring 3,090 ft.; est. 65,000,000 ft. gas.

Amerada Pet. Corp.'s No. 3 Daugherty, NW cor. NE SE Sec. 3, Blk. 74 — Drlg. 2,664 ft.

Atlantic Prod. Co.'s No. 4 Hendricks, SW W half NE Sec. 44, Blk. 26 — Location.

V. T. Bolin et al's No. 2 Brown, 2,000 ft. S and W of NE cor. Sec. 4, Blk. B-5, Public School Land. — Shut down 210 ft. water.

Barnsdall Oil Corp.'s No. 1 Tobe Morton, 330 ft. N and E of SW cor. Sec. 26, Blk. B-12 — Oil show 3,070 ft.; shut down 3,128 ft.

Barnsdall Oil Corp.'s No. 2 Tobe Morton, 1,650 ft. N and 330 ft. E of SW cor. Sec. 26, Blk. B-12 — Set 12½-in. casing 547 ft.; shut down 1,094 ft.

Barnsdall Oil Corp.'s No. 3 Tobe Morton, 990 ft. N and 330 ft. E of SW cor. Sec. 26, Blk. B-12 — Cellar.

Empire Gas & Fuel Co.'s No. 2 Daugherty, 330 ft. N and 2,310 ft. E of SW Sec. 3, Blk. 74 — Top lime 2,690 ft.; coring 3,105 ft.; 15,000,000 ft. gas 3,090 ft.; testing 3,145 ft.

Empire Gas & Fuel Co.'s No. 3 Daugherty, 330 ft. N and 990 ft. E of SW cor. Sec. 3, Blk. 74 — Top lime 2,774 ft.; cem. 9-in. casing 2,781 ft.; total depth 2,909 ft.; rig burned; cleaning up.

Empire Gas & Fuel Co.'s No. 1-B Daugherty, 2,310 ft. S and 990 ft. W of NE cor. Sec. 3, Blk. 74 — Top lime 2,823 ft.; drlg. 2,950 ft.

Gulf Prod. Co.'s No. 3 Cowden, 1,310 ft. N, 330 ft. E of SW of their 240-ac. tract, Sec. 3, Blk. B-12 — Drlg. 160 ft.

Gulf Prod. Co.'s No. 2 Hendricks, 1,330 ft. N and 330 ft. W of SE cor. NW Sec. 44, Blk. 26, School Land. — Location.

Gulf Prod. Co.'s No. 2 O'Brien, NW cor. Sec. 31, Blk. F. — Cem. 8¼-in. casing 2,072 ft.; top lime 2,723 ft.; cem. 6-in. casing 2,798 ft.

Gulf Prod. Co.'s No. 3 O'Brien, Sec. 31, Blk. F. — Set 10-in. casing 2,150 ft.; top lime 2,700 ft.; drlg. 2,815 ft.

Humble Oil & Ref. Co.'s No. 3 Hendricks-C Lease No. 2, 1,320 ft. S and 330 ft. E of NW cor. Sec. 10, Blk. B-12 — Drlg. 540 ft.

Independent O. & G. Co.'s No. 3 McCabe, 990 ft. S and 2,310 ft. W of NE cor. Sec. 36, Blk. B-5, School Land. — Top salt 950 ft.; top lime 2,296 ft.; oil show 2,515 ft.; 1,800 ft. oil in hole; drlg. 3,184 ft.

Independent Oil & Gas Co.'s No. 3-B Hendricks, NW W half SE Sec. 44, Blk. 26 — Moving in material.

Magnolia Pet. Co.'s No. 1 Scarborough, 2,310 ft. S and 990 ft. E Sec. 1, Blk. C-22 — Top salt 1,122 ft., gas show 2,840-45 ft.; 1,500 ft. oil in hole; shut down 2,980 ft.

Marland Oil Co.'s No. 1 Tobe Morton, SE cor. Sec. 27, Blk. B-12 — Cem. 12½-in. casing 492 ft.; top lime 2,652 ft.; cem. 8¼-in. casing 2,656 ft.; oil show 2,780 ft.; fishing 2,830 ft.

Marland Oil Co.'s No. 2 Tobe Morton, 990 ft. N and 330 ft. W of SE cor. Sec. 27, Blk. B-12 — Set 12½-in. casing 405 ft.

Morris & Henshaw's No. 1-B Hendricks, 1,650 ft. N and 990 ft. E of SW cor. Sec. 28, Blk. B-5, School Land. — Rigging up standard tools.

Prairie Oil & Gas Co.'s No. 5 Cowdan, 1,320 ft. N and 990 ft. E of SW cor. Sec. 3, Blk. B-12, School Land. — Drlg. 200 ft.

Prairie O. & G. Co.'s No. 1 Leck, 330 ft. S and 2,310 ft. E of NW cor. Sec. 16, Blk. 74 — Cem. 12½-in. casing 240 ft.; drlg. 2,740 ft.; cem. 8-in. casing 2,662 ft.

Prairie O. & G. Co.'s No. 2 Leck, 330 ft. S and 2,310 ft. W of NE cor. Sec. 16, Blk. 74 — Rig.

Prairie O. & G. Co.'s No. 1 Tobe Morton, 330 ft. N and 1,650 ft. W of SW cor. Sec. 27, Blk. B-12 — Cem. 12½-in. casing 500 ft.; cem. 8¼-in. casing 2,770 ft.; drlg. 2,810 ft.

Pure Oil Co.'s No. 1 Hendricks, NE SW Sec. 44, Blk. 26. — Moving in material.

Shell Pet. Co.'s No. 1 Daugherty, 2,810 ft. S and W of NE cor. Sec. 3, Blk. 74 — Cem. 12½-in. casing 528 ft.; top lime 2,684 ft.; set 9⅝-in. casing 2,689 ft.; drlg. 2,780 ft.

Shell Pet. Co. et al's No. 2 Lum Daugherty, 2,310 ft. S and 1,650 ft. W of NE Sec. 3, Blk. 74 — Top lime 2,742 ft.; drlg. 3,013 ft.

Simms Oil Co. and Southwest O. P. Co.'s No. 1 George Sealey 2,434 ft. S and 330 ft. W of NE cor. Sec. 50, Blk. F — Drlg. 2,650 ft.

Southern C. O. P. Co. and Westbrook Thompson's No. 4 Hendricks T-88-B, 330 ft. S and 1,330 ft. E NW cor. Sec. 4, Blk. B-12, Public School Land — Top lime 2,721 ft.; drlg. 2,739 ft.

Southern C. O. P Co.'s No. 3 Hendricks T-88-D, 1,320 ft. N and W of SE cor. Blk. B-12, Public School Land — Top lime 2,558 ft.; drlg. 2,690 ft.

Southern C. O. P. Co. and Westbrook-Thompson's No. 2 Hendricks T-89-C, 2,310 ft. N and W of SE cor. Sec. 35, Blk. B-5. — Cem. 8¼-in. casing 2,290 ft.; rigging up standard tools; drlg. plug.

Southern Crude O. P. Co.'s Hendricks T-89-V, 1,320 ft. S and 330 ft. W of NE cor. Sec. 9, Blk. B-12, School Land — Location.

Texas Canadian Oil Co.'s No. 1 Kloh-Rumsey, 1,320 ft. N and E of SW cor. Sec. 35, Blk. 46, T.&P.R.R. Sur. — Location.

Warner-Quinlan Co.'s No. 1 Daugherty, 2,310 ft. S and E of NW cor. Sec. 3, Blk. 74, Public School Land — Cem. 8¼-in. casing 2,671 ft.

WILDCAT OPERATIONS IN TEXAS PANHANDLE

(Continued from Page 39)

Danciger et als' No. 1 Shaw, 1,000 ft. N and 330 ft. W SE cor. SW, Sec. 5, Blk. 1, A.C.H.&B. Sur. — 35,000,000 ft. gas 2,290 ft; show oil 2,610-13 ft; S.D. 2,645 ft.

Danciger et als' No. 1 J. E. Williams, 330 ft. each way from NE cor. NW SW, Sec. 6, Blk. 1, A.C.H.&B. Sur. — Rig.

Danciger et als' No. 1 Sheridan, SE cor. Sec. 184, Blk. B-2, H.&G.N.R.R. Sur. — Location.

Delmar Oil Co.'s No. 1 F. Foster, NW cor. SW, Sec. 55, Blk. B-2, H.&G.N. Sur. — S.O.; 4,000,000 ft. gas 2,835-97 ft; T.D. 3,757 ft; to plug back to 2,950 ft. and shoot.

Delmar Oil Co.'s No. 1 Chapman, 330 ft. each way from SE cor. NW, Sec. 10, Blk. 26, H.&G.N. Sur. — Drlg. 250 ft.

Empire G. & F. Co.'s No. 1 A. R. Clay, NE cor. Sec. 185, Blk. B-2 — Rig.

Eslick & McKinney's No. 1 Mrs. Hopkins, 330 ft. from NE, E½ NE, Sec. 84, Blk. B-2, H.&G.N. Sur. — Drlg. 1,920 ft.

Sines & Reiger's, formerly Eslick et als' No. 1 Mrs. J. A. Hopkins, NW cor. W 80 ac. of SW, Sec. 84, Blk. B-2, H.&T.C. Sur. — Pull 6-in. csg. 3,206 ft.

Gulf Prod. Co.'s No. 6 J. B. Sowers-A, 330 ft. S and E NW cor. W½, Sec. 89, Blk. B-2, H.&G.N. Sur. — Cmtd. 6-in. 3,028 ft.

Gulf Prod. Co.'s No. 4 Holmes-A, 990 ft. N and 330 ft. E of SW cor. W½ SE, Sec. 87, Blk. 3, I.&G.N. R.R. Sur. — Drlg. 2,475 ft.

Gardner, Collins et als' No. 1 Saunders, 330 ft. each way from NE cor. of S 49 ac. of W 100 ac., Sec. 3, B.&B. Sur. — Drlg. 2,430 ft.

Magnolia Pet. Co.'s No. 3 W. Harrah, 330 ft. from NE cor. NW, Sec. 150, Blk. 3, I.&G.N. Sur. — Drlg. 340 ft.

Magnolia Pet. Co.'s No. 1 Gething, 530 ft. each way from SE SW, Sec. 14, Blk. A-9, H.&G.N. Sur. — Drlg. 200 ft.

Magnolia Pet. Co.'s No. 1 Saunders, 330 ft. from SE W½ NW, Sec. 4, Blk. 1, A.C.H.&B. Sur. — Shot with 40 and 70 qts. 2,655-2,716 ft; spraying 40 bbls; drlg. 2,720 ft.

Malone et als' No. 1 Taylor, 990 ft. S and E of NW cor. NW, Sec. 22, Blk. B-2, H.&G.N. Sur. — Rig.

Marland Prod. Co.'s No. 1 Brown-Finley, 330 ft. S and W of NE cor. Sec. 32, Blk. B-2, H.&G.N.R.R. Sur. — Rig.

McElroy Oil Co.'s No. 2 Bruce Bull, 155 ft. from N line and 240 ft. from W line of E 87.3 ac. of Sec. 3, Blk. B-2, H.&G.N.R.R. Sur. — S.D. 2,564 ft.

McMan O. & G. Co.'s No. 2 Binkley, 330 ft. each way from NW cor. W½ SE cor. Sec. 86, Blk. 3, I.&G. N. Sur. — S.O. 3,124 ft; 3,190-3,203 ft; and 3,225-32 ft; T.D. 3,281 ft; swbd. swbd. 225 bbls. 12 hrs; C.O.

McLain Oil Co.'s No. 1 Back, 1,000 ft. from W line and 330 ft. from N line NW, Sec. 24, Blk. 25, H.&G.N. Sur. — Rig.

Parton & Holt's No. 1 Gething, 330 ft. each way from SE cor. NE, Sec. 14, Blk. A-9 — Drlg. 2,355 ft.

Phillips Pet. Co.'s No. 4 Johns, 330 ft. each way from NE cor. SE SW, Sec. 87, Blk. 3, I.&G.N. Sur. — Drlg. 2,235 ft.

Phillips Pet. Co.'s No. 5 Johns, 330 ft. N and 990 ft. E of SW cor. SW, Sec. 87, Blk. 3, I.&G.N. Sur. — Rig on ground.

Phillips Pet. Co.'s No. 1 Bob Olsen, NW cor. S½, Sec. 64, Blk. B-2 — T.D. 3,239 ft; plugged back to 3,230 ft; shot with 440 qts. at 3,119-3,222 ft; 600 ft. oil and 60 ft. wtr. in hole; drlg. 3,790 ft.

Plains Drlg. Co.'s No. 2 Saunders, 990 ft. from S line and 330 ft. from E line of E½ SE, Sec. 4, Blk. 1, A.C.H.&B. Sur. — Skidded 60 ft. N; drlg. 2,250 ft.

Pure Oil Co.'s No. 8 Davis, 330 ft. from NW NE, Sec. 86, Blk. 3, I.&G.N.R.R. Sur. — Show oil lime 3,036 ft; T.D. 3,254 ft. swbd. 125 bbls; drlg. 3,281 ft.

Prairie O. & G. Co.'s No. 2 Reynolds, 330 ft. each way from NW cor. SE, Sec. 61, Blk. 3, I.&G.N. Sur. — Drlg. 2,650 ft.

Purple Sage Oil Co.'s No. 2 E. B. Johnson — 2,000,000 ft. gas; 200 ft. oil 2,870 ft; shot with 510 qts. 2,775-2,872 ft; 400 ft. oil; C.O. 2,875 ft.

Republic Prod. Co.'s No. 1 G. H. Saunders, 330 ft. each way from SW cor. E½ NW cor. Sec. 4, Blk. 1, A.C.H.&B. Sur. — Fish. 2,625 ft.

Schwald et als' No. 1 fee, 330 ft. each way from NE cor. E½ SW, Sec. 1, Blk. 1, A.C.H.&B. Sur. — Drlg. 2,350 ft.

Skelly Oil Co.'s No. 1 Saunders, 330 ft. from E line, 990 ft. from S line, SW, Sec. 4, Blk. 1, A.C.H.&B. Sur. — Drlg. 2,475 ft.

Skelly Oil Co.'s No. 2 Saunders, 231 ft. from S line, 1,127 ft. from W line, SW, Sec. 4, Blk. 1, A.C. H.&B. Sur. — Flowed 415 bbls. first 8½ hrs. from G.W at 2,575-85 ft; to drill deeper.

Skelly Oil Co.'s No. 3 Saunders, 330 ft. from N line and 990 ft. from W line, SW cor. Sec. 4, Blk. 1, A.C.H.&B. Sur. — Fish. 2,599 ft.

Skelly Oil Co.'s No. 4 Saunders, 330 ft. from N line and 990 ft. from E line, SW cor. Sec. 4, Blk. 1, A.C.H.&B. Sur. — Stdznd. 2,588 ft.

St. Clair Oil Co.'s No. 1 Rowe, Sec. 32, Blk. R — S.D. 2,150 ft.

St. Clair Oil Co.'s No. 1 L. S. Stockton, SE cor. Sec. 35, W. R. Lee Sur. — Spudded and S.D.

Southern Pet. Exp. Co.'s No. 2 McConnell, 990 ft. from W line and 330 ft. from S line NW, Sec. 174, Blk. 3, I.&G.N. Sur. — Drlg. 500 ft.

The Texas Co.'s No. 5 A. Chapman, 1,138 ft. from W and 330 ft. from S lines, SE, Sec. 51, Blk. 25, H. &G.N. Sur. — Cellar.

The Texas Co.'s No. 4 H. Davis, SE cor. NW, Sec. 86, Blk. 3, I.&G.N. Sur. — C.O. 3,240 ft.

The Texas Co.'s No. 5 Davis, 330 ft. S and W of NE cor. NW, Sec. 86, Blk. 3, I.&G.N. Sur. — Drlg. 2,250 ft.

The Texas Co.'s No. 8 Saunders, 895 ft. N and 2,060 ft. E of SW cor. Sec. 3, B.&B. Sur. — Drlg. 2,400 ft.

The Texas Co.'s No. 9 Saunders, 330 ft. S and 3,016 ft. E of NW cor. Sec. 1, Eustis Sur. — Drlg 2,300 ft.

The Texas Co.'s No. 7 Saunders, 990 ft. from S line and 330 ft. from W line W½ SE cor. Sec. 4, Blk. 1, A.C.H.&B. Sur. — Drlg. 2,525 ft.

Travis et als' No. 1 J. S. Morse, SE NW SW, Sec. 68, Blk. 25, H.&G.N. Sur. — 30,000,000 ft. gas 2,592-2,610 ft; light spray oil 2,740-45 ft; to deepen.

Wilcox-Pampa Oil Co.'s No. 30 Wooley & Reynolds, NW SE NW, Sec. 61, Blk. 3 — Flows 147 bbls. from G.W. at 3,038-3,100 ft.

United Eight O. & T. Co.'s No. 1 E. B. Clay, SE cor. W½ SW, Sec. 177, Blk. B-2 — Swabs 7½ bbls. per hr. 3,251 ft; placing lead plug to shut off wtr. and putting on gas lift.

Wilcox-Pampa Oil Co.'s No. 31 Worley Reynolds, 330 ft. N and E SW cor. SE SW, Sec. 61, Blk. 3, I.&G.N. .. S.D. 2,330 ft.

HALL COUNTY

Rio Bravo Oil Co.'s No. 1 Hughes est., 950 ft. from N line, 150 ft. from E line, Sec. 39, Blk. H, L. A. Stephens Sur. .. Set 6-in. 3,500 ft; S.D. 4,250 ft.

HOCKLEY COUNTY

World Oil Co.'s No. 1 Ellwood, 320 ft. from N and W lines, League 7, Wilbarger County school lands; elevation 3,363 ft.; contract depth 5,000 ft. .. S.D. 1,455 ft.

HARTLEY COUNTY

Amarillo Oil Co.'s No. 9 Lee Bivins "A," C NW, Sec. 6, Blk. 21 .. 15,000,000 ft. gas 3,300-35 ft; T.D. 3,601 ft; to deepen.

Canadian River Gas Co.'s No. 10 Burns-A, 660 ft. N. and 660 ft. E. Sec. 18, Blk. 2, G.&M. Sur. .. Location.

HUTCHINSON COUNTY

Antelope Creek Oil Co.'s No. 3 Sanford, 330 ft. from N line and 330 ft. from W line of E½ S 160 ac. of Sec. 82, Blk. 46, H.&T.C. Sur. .. Run. 8-in. 2,100 ft.

R. G. Barnum et als' No. 1 Garland Sanford, Sec. 78, Blk. 46 .. S.O. 2,920 ft; S.D. 3,030 ft.

Dunnigan et als' No. 1 C. W. Hugenbyhl, 330 ft. from S line and 33 0ft. from E line, N½, Sec. 4, Blk. T. W.N.G.R.R. Sur. .. Drlg. 850 ft.

Oil Operators Trust Co. and Marland's No. 2 J. M. Stanford B, Sec. 82, Blk. 46, H.&T.C. Sur. .. S.D. 3,039 ft.

Phillips Pet. Co.'s No. 4 Johnson Bros.-Florence, 330 ft. N and E of SW cor. E½, Mary Whitely Sur. .. Spud.

Phillips Pet. Co.'s No. 3 Johnson-Pulaski, 330 ft. N and W of SE cor. W½, Mary Whitely Sur. .. Drlg. 510 ft.

Phillips Pet. Co.'s No. 5 Johnson-Barnum, 990 ft. N and 330 ft. W SE cor. E 80 ac. of S 160 ac. of N 400 ac., Sec. 64, Blk. 46, H.&T.C.R.R. Sur. .. Rig.

Phillips Pet. Co.'s No. 1 Sanford-Garford, 330 ft. N and E of SW cor. N 40 ac. of E 80 ac. of S 160 ac. of S 320 ac., Sec. 77, Blk. 46, H.&T.C.R.R. Sur. .. Fish. 2,920 ft.

Phillips Pet. Co.'s No. 3 Sanford-Garland, 330 ft. N and E of SW cor. Sec. 77, Blk. 46, H.&T.C. Sur. .. Rig.

Phillips Pet. Co.'s No. 15 Whittenburg, Sec. 63, Blk. 46, H.&T.C. Sur. .. Rig.

Phillips Pet. Co.'s No. 16 Whittenburg, Sec. 63, Blk. 46, H.&T.C. Sur. .. Rig.

Premier O. & G. Co.'s No. 1 L. E. Borton, C NE NW NW, Sec. 32, Blk. Y, A.&B. Sur. .. Rigged up and S.D.

Timms et als' No. 2 Garner, 990 ft. S and 330 ft. E of NW cor. J. W. Proctor Sur. .. Run. 6-in. 3,045 ft.

Timms et als' No. 1 Moore, 330 ft. N and E of SW cor. S 40 ac. of NW, Sec. 21, Blk. M-21, T.C.R.R. Sur. Rig.

Wendell et als' No. 1 Johnson Bros., Sec. 1, Blk. X03 .. Set 10-in. csg. 2,035 ft; S.D.

KING COUNTY

The Texas Co.'s No. 1 J. H. Johnson .. S.D. 4,300 ft.

LAMB COUNTY

Dan Freel et als' No. 1 Ellwood, CWL, Sec. 9, Blk. T, T. A. Thompson Sur. .. Spudded and S.D.

LIPSCOMB COUNTY

Brown et als' No. 1 Box T. Ranch, SW NE, Sec. 612, H.&T.C. Sur. .. S.D. 2,400 ft.

Ruby Oil Co.'s No. 1 C. W. Jones, NE SW, Sec. 100, H.&T.C. Sur. .. S.D. 4,433 ft. for 5-in. csg.

LUBBOCK COUNTY

Center Oil Co.'s No. 1 Bowles ranch .. Small show oil 1,133-40 ft; sand; S.D. 4,000 ft.

MOORE COUNTY

Barnsdall Oil Corp.'s No. 1 L. R. Hagy, NW cor. of Thomas Ross Sur. .. 20,000,000 ft. gas 3,205 ft; T.D. 3,234 ft; 900 ft. oil 3,226-34 ft; swbd. twice in one day and made 52 bbls.; drlg. 3,200 ft; swbng. 15 bbls.

Canadian Gas Co.'s No. 1 Kilgore-A, 2,716 ft. S and 2,695 ft. W of NE cor. Sec. 1, Eustis Sur. .. Rig.

Devonian Oil Co.'s No. 1 J. T. Sneed, Jr., 2,225 ft. from E and 330 ft. from S lines, S 160 ac., N 320 ac., of Matilda Robinson Sur. .. Fish. 2,980 ft.

Dixie Creek Oil Co.'s No. 1-A Sneed, Jr., 330 ft. N and W of SE cor. E½, Sec. 65, Blk. 3, G.M. Sur. .. T.D. 3,197 ft; S.D.

Dixie Creek Oil Co.'s No. 4-A Sneed, Jr., 330 ft. S and W of NE cor. E½, Sec. 65, Blk. 3 .. 10,000,000 ft. gas 2,835-55 ft; 50 ft. oil 3,304-05 ft; reaming to 3,305 ft.

Fritch O. & G. Co.'s No. 1 Lee Burns, C NE 40 ac. of N 160 ac., Sec. 4, Geo. Mahan Sur. .. Spudded and S.D.

McMan O. & G. Co.'s No. 1 Sneed, 2,260 ft. S and 330 ft. W of NW cor. J. W. Proctor Sur., but in Matilda Robinson Sur. .. Lime pay 3,097-3,103 ft; 30 qts. at 3,097-3,110 ft., 205 bbls.

Phillips Pet. Co.'s No. 1 Burnett, 330 ft. each way from NE cor. NE, Sec. 192, Blk. 3-T, T.&N.O. Sur. Drlg. 450 ft.

Phillips Pet. Co.'s No. 3 Sneed (James), 600 ft. S and 300 ft. W of NW cor. J. W. Proctor Sur., but in Matilda Robinson Sur. .. U.R. 6-in. csg. 3,050 ft.

Skelly Oil Co.'s No. 5 Armstrong & Byrd, 2,260 ft. S and 330 ft. E of NW cor. J. W. Proctor Sur. .. T.D. 3,168 ft; P.B. to 3,155 ft. and swbd. 485 bbls. first 24 hrs; 10 qts. 3,145-52 ft; C.O. to shoot again.

MOTLEY COUNTY

Expltn. Co.'s No. 1 Tillson .. Drlg. 885 ft.

Expltn. Co.'s No. 2 Matador Land & Cattle Co., C SW, Sec. 37, John Gibson Sur. .. U.R. 6-in. csg. 4,700 ft.

ROBERTS COUNTY

Big Bend Oil Co.'s No. 1 Ledrick, Sec. 7, Blk. 5-A .. Formerly abd. at 5,240 ft; small show 36 gravity oil 5,288-91 ft; show oil brown sand 5,710-12 ft; drlg. 5,788 ft.

WHEELER COUNTY

Angus et als' No. 2 Morgan, C E½ NW NE, Sec. 93, Blk. 17, H.&G.N. Sur. .. S.D. 1,175 ft. for pipe.

Arnold Oil Co. et als' No. 1 Ritchey, 420 ft. from E and 460 ft. from S lines of NW cor. Sec. 5, Blk. 24, H.&G.N. Sur. .. Rig.

Byrens et als' No. 1 Johnson, SW cor. NE, Sec. 88, Blk. A-5, H.&G.N. Sur. .. S.D. 2,800 ft.

Chapman & Morgan's No. 1 Otis Hatcher, NW cor. SW SE, Sec. 63, Blk. 17, H.&G.N. Sur. .. S.D. 715 ft.

Clark et als' No. 1 Close, 330 ft. from N line and 660 ft. from E line of S½ SE NE, Sec. 82, Blk. 23, H.&G.N. Sur. .. Rig blew down and loc. abd.

Fain McGaha and Humble's No. 1 Noel, 330 ft. each way from NE cor. S½ SE, Sec. 54, Blk. 24, H.& G.N. Sur. .. Spud.

Hartell et als' No. 1 Burchman, C NW SE, Sec. 91, Blk. 17, H.&G.N. Sur. .. Drlg. 1,250 ft.

Johnson & Co.'s No. 1 Purcell, 430 ft. from N line and 570 ft. from W line NE, Sec. 50, Blk. 17, H.&G.N. Sur. Drlg. 285 ft.

Lone Star Co.'s No. 1 Hicks, C SW NE, Sec. 53, Blk. 17, H.&G.N. Sur. .. Cellar.

Lone Star Gas Co.'s No. 3 Jones, C NW NE, Sec. 1, Blk. 25, H.&G.N. Sur. .. Rig.

Lone Star Co.'s No. 1 Shelton, C NE SE, Sec. 22, Blk. 24, H.&G.N. Sur. .. Fish. 620 ft.

Lone Star Gas Co.'s No. 2 Stuckey, C W½ SE SW, Sec. 92, Blk. 17, H.&G.N. Sur. .. S.D. 1,860 ft.

Martin & Dubous' No. 1 Close, 330 ft. S and 660 ft. W NE cor. NE SE, Sec. 82, Blk. 23, H.&G.N. Sur. .... Rig.

L. W. Rook's No. 1 M. Nelson, C SW NE, Sec. 5, Blk. 24, H.&G.N. Sur. .. C.O. 1,950 ft.

J. D. Whittington et als' No. 3 Williams-Laycock, 330 ft. N and E of SW cor. SW, Sec. 9, Blk. 27, H. &G.N.R.R. Sur. .. Spud.

L. W. Rook's No. 2 A. Smock, C SW SE, Sec. 5, Blk. 24, H.&G.N. Sur. .. Rig.

Wisch Kamper's No. 1 Parsons, C NW NW, Sec. 53, Blk. 23, H.&G.N. Sur. .. C.O. 1,950 ft.

Wisch Kamper's No. 2 Wisch-Kamper, 175 ft. N and 164 ft. E of SW cor. NE SW, Sec. 86, Blk. 23, H. &G.N. Sur. .. S.D. 485 ft.

Upham Gas Co.'s No. 1 Trostle, Sec. 130, Blk. 23, H. &G.N. Sur. .. S.D. 1,775 ft. for pipe.

Upham Gas Co.'s No. 1 Raybo, C S½ NW NW, Sec. 105, Blk. 23, H.&G.N. Sur. .. Bldg. rig.

KANSAS WILDCATS

(Continued from Page 44)

EDWARDS COUNTY

Amerada & Wilcox's No. 1 Teansil, C NW SW Sec. 32-25-19w .. Drlg. 3,815 ft.

British American Oil Co.'s No. 1 McCarty, NE cor. NW Sec. 31-25-17w .. Spudded and shut down.

GEARY COUNTY

Wright et al's No. 1 Younker, NW cor. NE Sec. 17-11-5.. Shut down 1,200 ft.

GRAHAM COUNTY

Gulf Coast Oil Co.'s No. 1 Johnson, C S half Sec. 27-8-25w .. Shut down 2,450 ft.

HARPER COUNTY

Amerada Pet. Corp.'s No. 1 Mendiville, C E SE Sec. 24-34-6w .. Cleaning out 5,353 ft.

HARVEY COUNTY

R. S. Austin's No. 1 Nieman, SW cor. SW Sec. 21-24-2.... Drlg chat 2,765 ft.

Mrs. Gay et al's No. 1 Grove, C NW NE NW Sec. 29-23-1w .. Rig.

Helmerich & Payne's No. 1 Lindamond, C SW NE SW Sec. 2-22-1e .. Spudded.

JEFFERSON COUNTY

Wichiet Oil Co.'s No. 1 Simpson, NW cor. SW SW Sec. 19-10-17 .. Rigged up and shut down.

JACKSON COUNTY

Garvin & Morton's No. 1 Lutes, SW cor. NW NW Sec. 27-7-15 .. Shut down 940 ft.

LANE COUNTY

Blankenship Pet. Co.'s No. 1 Schaeffer, NE cor. NE Sec. 24-16-28w .. Spudded and shut down.

MARSHALL COUNTY

Irwin et al's No. 1 Cooper, NE cor NW Sec. 10-3-7.... Drlg. 620 ft.

MARION COUNTY

Empire Oil & Ref. Co.'s No. 1 Burhart, SE cor. NE NE Sec. 11-20-3 .. Drlg. 2,400 ft.

J. E. Hauna's No. 1 Pankratz, NE cor. NE SW Sec. 13-20-3 .. Rig.

Empire Oil & Ref. Co.'s No. 1 Jenson, SE cor. NW Sec. 26-22-5 .. Underreaming 2,605 ft.

A. E. Meyers' No. 1 Papp, SW cor. SW NE Sec. 10-18-2.. Spudded.

MEADE COUNTY

Blackwell O. & G. Co.'s No. 1 Beyer, SE cor. NW SE Sec. 9-33-28w .. 500,000 ft. gas and 2 bailers water; total depth 4,356 ft.

MITCHELL COUNTY

Ben Gurley et al's No. 1 Crombil, C NE NE Sec. 32-9-7w .. Drlg. 4,067 ft.

MORRIS COUNTY

Hugh Faulder's No. 1 Wendt, SW cor. SE SE Sec. 18-15-5 .. Spudded.

Skelton et al's No. 1 Iles, NW cor. NW Sec. 25-16-5..... Rig.

O'Day et al's No. 1 Scott, NE cor. SW Sec. 6-16-6..... Rig.

McPHERSON COUNTY

Ted Washabaugh's No. 1 Vosshell, NE cor. NE Sec. 9-21-3w .. Drlg. 1,945 ft.

Lariaux et al's No. 1 Martinson, NE cor. Sec. 9-19-3w..... Rig.

McPherson Gas Co.'s No. 1 Stein, SW cor. NE SW Sec. 17-18-1w .. Underreaming 3,070 ft.

McPherson Gas Co.'s No. 1 Gustafson, C NE Sec. 9-17-2w .. Drlg. 3,475 ft.

W. C. Newman's No. 1 Diepenbrock, NW cor. NE Sec. 2-17-1w .. Casing 3,320 ft.

McPherson Gas Co.'s No. 1 Wedell, C SW Sec. 12-20-2w .. Drlg. 2,960 ft.

Vickers Pet. Co.'s No. 1 Wedell, C SW Sec. 12-20-2w.... Rig.

Mid-Kansas Oil & Gas Co.'s No. 1 Yoder, C NW SW Sec. 8-20-4w .. Drlg. 670 ft.

Marland Prod. Co.'s No. 1 Wilkering, C SW SW Sec. 9-21-1w .. Drlg. 650 ft.

NESS COUNTY

Barnsdall Oil Co.'s No. 1 Lauk, C SW Sec. 35-18-21w.... Spudded.

OSBORNE COUNTY

L. D. Jarvis' No. 1 Jellison, SE cor. SE Sec. 13-10-15w.... Spudded and shut down.

OTTAWA COUNTY

Anderson et al's No. 1 Bank, NE cor. NW Sec. 28-10-2w.. Shut down 2,820 ft.

PAWNEE COUNTY

F. C. Troupe's No. 1 Lovett, CEL NE NE Sec. 31-21-16w.. Shut down 1,560 ft.

PHILLIPS COUNTY

Watsonia Oil Co.'s No. 1 Marklein, NE cor. SW Sec. 21-3-19w .. Shut down 3,015 ft.

British American Oil Co.'s No. 1 Weinman, C SW SW Sec. 34-2-19w .. Rig.

RENO COUNTY

Austin Drilling Co.'s No. 1 Strickley, SW cor. NW Sec. 17-25-5w .. Rig.

RICE COUNTY

Allison & Fitzwilliams' No. 1 Poland, NE cor. SW NE Sec. 36-19-8w .. Cellar.

Higgins & Stembubble's No. 1 Shurr, NE cor. SW Sec. 21-20-10w .. Spudded and shut down.

ROOKS COUNTY

Empire G. & F. Co.'s No. 1 Woodrill, NE cor. SE NW Sec. 15-8-18w .. Drlg. 3,116 ft.

Prairie Oil & Gas Co.'s No. 1 Sandberg, C SW Sec. 20-9-18w .. Rig.

Krueger et al's No. 1 Poore, NE cor. NE Sec. 14-8-16w.... Drlg. 3,410 ft.

Burford & Brimm's No. 1 Toxa, NE cor. SW SE Sec. 22-19-17w .. Spudded and shut down.

Skelly & Mid-West's No. 1 Jones, SW cor. NE NW Sec. 28-7-16w .. Shut down 3,485 ft.

RUSH COUNTY

Phillips Pet. Co.'s No. 1 Legleiter, NE cor. NW SE Sec. 10-16-18w .. Rig.

Sinclair Oil & Gas Co.'s No. 1 Berching, NW cor. NE NW Sec. 9-16-16w .. Drlg. 3,472 ft.

Danciger Oil & Ref. Co.'s No. 1 Poland, NE cor. SW NE Sec. 17-19-17w .. Drlg. 350 ft.

RUSSELL COUNTY

Joe Liggett's No. 1 Maier, SE cor. NE SE Sec. 8-11-15w.. Top Oswald 3,016 ft.; show oil and water, drlg. 3,280 ft.

SALINE COUNTY

M. Esty et al's No. 1 Peterson, C NE Sec. 6-16-5w..... Spudded and shut down.

Boyle et al's No. 1 Miller, SW cor. SE Sec. 21-16-1w..... Underreaming 2,615 ft.

Nathan Jones et al's No. 1 Robertson, NW cor SW Sec. 27-14-2w .. Drlg. 2,765 ft.

SEDGWICK COUNTY

Bu-Vi-Bar et al's No. 1 Roberts, SE cor. SW Sec. 1-26-2w .. Rig.

E. B. Shawver et al's No. 1 Broeis, NE cor. SW Sec. 5-26-2e .. Drlg. 1,230 ft.

Barnsdall Oil Co.'s No. 1 Means, NW cor. SW Sec. 34-27-2 .. Shut down 1,860 ft.

Lewis et al's Nos. 1 Taylor, NW cor. NE Sec. 23-27-2..... Drlg. 785 ft.

J. H. Tatlock et al's No. 1 Goeldner, NW cor. NE Sec. 6-29-2e .. Shut down 2,200 ft.

La Robb Oil Co.'s No. 1 Davis, SE cor. SE Sec. 36-25-1w.. U.H. 3,436-39 ft; swbd. 500 bbls.

Hyser et al's No. 1 Stroot, SW cor. NW Sec. 8-26-2w..... Spudded.

Magiason et al's No. 1 Buckles, NW cor. SE Sec. 3-28-1w.. Shut down 250 ft.

McCulloch Oil Co.'s No. 1 John, C NE SW NE Sec. 24-29-1e .. Drlg. 1,685 ft.

Morgan & Tilley's No. 1 Fitzgerald, NW cor. NE Sec. 5-26-1w .. Rig.

Barnsdall Oil Co.'s No. 1 Faber, SW cor. NW Sec. 6-27-1w .. Underreaming 3,010 ft.

Bu-Vi-Bar Pet. Co.'s No. 1 Steel, SE cor. SE Sec. 1-26-2w.. Underreaming 3,310 ft.

Connell & Slick's No. 1 Cross, NE cor. NE Sec. 27-25-1w.. Drlg. 2,760 ft.; show oil.

VanZant & Mason's No. 1 Fox, C NW SW Sec. 19-25-1w.. Show of oil 2,905-2,915 ft.

Barnsdall Oil Co.'s No. 1 Samuels, NE cor. NW Sec. 24-25-1 .. Drlg. 2,490 ft.

Marland Prod. Co.'s No. 1 Goodrich, SW cor. NE SW Sec. 16-25-1 .. Flowed 2,120 bbls. in 12 hours; pinched in.

Shell Pet. Corp.'s No. 1 Lygrisse, SE cor. NE Sec. 15-26-2e .. Rig.

SHERMAN COUNTY

A. L. Henson et al's No. 1 Murry, NE cor. SE NW Sec. 22-7-40w .. Shut down 3,035 ft.

STEVENS COUNTY

Trees Oil Co.'s No. 1 Thompson, C NE SW Sec. 3-35-38w.. Casing trouble 600 ft.

W. Sidwell et al's No. 1 Kelly, SW cor. NE Sec. 16-34-38w .. Shut down 1,213 ft.

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FOR over thirty years Biturine has stood the tests of every kind of corrosive condition known; has defied soil acids, alkalis, moisture and electrolysis, on thousands of miles of pipe lines, on ships at sea, water towers, etc.

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McKenna et al's No. 1 Haun, SE cor. NE Sec. 10-33-33w..Drlg. 1,510 ft.

SMITH COUNTY

Mid-Kansas Oil & Gas Co.'s No. 1 Unknown, NE cor. NE Sec. 4-2-13w ..... Rig.

SUMNER COUNTY

McCulloch Oil Co.'s No. 1 Teetle, SW cor. NE Sec. 29-34-1w ..... Shut down 4,350 ft.
Gypsy Oil Co.'s No. 1 Williams, NW SE SW Sec. 16-35-3w ..... Drlg. 4,400 ft.
Helmerich & Payne's No. 1 Warlick, SE cor. NE Sec. 8-34-2 ..... Dry and abandoned 3,854 ft.
Otstot et al's No. 1 Barlow, SE cor. SE Sec. 22-23-3w.... Plugging back to 4,150 ft.
Otstot et al's No. 1 Volker, NW cor. NE Sec. 9-35-1..... Rig.
Davidson and others' No. 1 Strickland, SW cor. SE Sec. 12-35-1w ..... Rig.

TREGO COUNTY

Central Commercial Oil Co.'s No. 1 Ellis, NE cor. SW NE Sec. 20-13-21w ..... Drlg. 3,030 ft.

WASHINGTON COUNTY

McCool & Vincent's No. 1 Linn, NW cor. NE Sec. 27-4-3... Rig.

WILDCAT OPERATIONS IN OKLAHOMA

(Continued from Page 42)

J. L. Slusher's No. 1 Nave, NE cor. SW NW Sec. 20-15-20 ..... Shut down 775 ft.

HUGHES COUNTY

Bauer and others' No. 1 Penn, NW cor. SW NE Sec. 1-8-10 ..... Dry and abandoned 4,255 ft.
E. W. Whitney and others' No. 1 Moore, SE cor. SW Sec. 17-5-9 ..... Shut down 3,000 ft.
Pure Oil Co.'s No. 1 Fixico, NE cor. SW Sec. 18-8-9..... Dry and abandoned 4,500 ft.
Howard Petroleum Co.'s No. 1 Gilbert, NW cor. SE Sec. 25-8-10 ..... Drlg. 3,943 ft.
Gypsy Oil Co.'s No. 1 McGirt, NE cor. NW SW Sec. 21-6-8 ..... Sand 3,310-30 ft.; corrected, hole full water.
T. B. Slick, Inc.'s No. 1 Epperly, NW cor. NE NW Sec. 32-6-8 ..... Dry in Wilcox, 4,655 ft., plugging back.

OKLAHOMA COUNTY

Slick & Bailey's No. 1 Koester, C SE NE Sec. 18-13-3w..Drlg. 4,640 ft.
Cromwell & Franklin's No. 1 Thompson, SW cor. NE NE Sec. 15-12-3w ..... Drlg. 7,120 ft.
Indian Terr. Ill. Oil Co.'s No. 1 fee, C SE SE Sec. 24-11-3w ..... Flowing 5,562 bbls. daily from 6,496 ft.

OKFUSKEE COUNTY

Moose & Daniels' No. 1 Stidham, SW cor. NW Sec. 4-11-10 ..... Shut down 622 ft.
T. B. Slick Inc.'s No. 1 Wolf, SE cor. NE SE Sec. 21-11-7..Drlg. 3,150 ft.
Dixie Oil Co.'s No. 1 Drew, NE cor. SW Sec. 8-13-10..... Dry and abandoned 3,437 ft.
Erwin and others' No. 1 Patterson, NW cor. SE. Sec. 15-13-9 ..... Location.

SEQUOYAH COUNTY

Cooper & Badger's No. 1 Young, NW cor. NE NE Sec. 7-12-20 ..... Shut down 440 ft.
Hunt and others' No. 1 Unknown, SE cor. NW SW Sec. 12-12-23 ..... Shut down 825 ft.
Buffington et al's No. 1 Melcher, C SW NW Sec. 31-12-24 ..... Drlg. 1,700 ft.

PAWNEE COUNTY

Washoma Oil Co. and others' No. 1 Buffalo, SE cor. NE Sec. 33-22-5 ..... Shut down 3,640 ft.

POTTAWATOMIE COUNTY

Phillips-Atlantic's No. 1 Winrow, SW cor. NE NE Sec. 11-9-4 ..... Dry and abandoned 4,672 ft.
Shell Pet. Corp.'s No. 1 Livingston, SW cor. SE Sec. 33-7-5 ..... Drlg. 4,260 ft.
Superior Oil Co.'s No. 1 Herminghausen, SW cor. NW NE Sec. 24-8-2 ..... Fishing 4,959 ft.
Shell Pet. Corp.'s No. 1 Lowe, SW cor. NW NE Sec. 17-6-5 ..... Cleaning out 4,920 ft.
Pure Oil Co.'s No. 1 Lindley, SE cor. SW SE Sec. 18-8-5..Hunton 4,124-40 ft., flowing 1,600 bbls.
T. B. Slick's No. 1 Sailor, SE cor. NW NW Sec. 12-8-3....Drlg. 3,855 ft.
T. B. Slick and Shell Pet. Corp.'s No. 1 Hurst, SE cor. NW NW Sec. 17-7-2 ..... Shut down 6,098 ft.
Tomlinson et al's No. 1 Wisenhurst, NW cor. NE SE Sec. 35-7-5 ..... Wilcox sand 4,582-94 ft.; hole full water; dry and abandoned.
Phillips Petroleum Co.'s No. 1 Parman, SE cor. SW Sec. 15-8-4 ..... Wilcox sand 4,644-73; 3,000 ft. of water; dry and abandoned.
Champlin Refining Co.'s No. 1 Foster, SW cor. NE SW Sec. 14-7-5 ..... Dry and abandoned 4,424 ft.
Shell Pet. Corp.'s No. 1 Wyatt, SW cor. NW NE Sec. 17-6-5 ..... Dry and abandoned 4,414 ft.
Mid-Continent Petroleum Corp.'s No. 1 James, SE cor. SE Sec. 22-5-3 ..... Location

CADDO COUNTY

Magnolia Petroleum Co.'s No. 1 Shelby, SW cor. SW Sec. 28-10-12w ..... Dry and abandoned 4,472 ft.
J. B. Bailey's No. 1 Hubbard, C NE NW Sec. 1-10-6w.... Shut down 150 ft.
Wirt Franklin's No. 1 James, NW cor. NW Sec. 18-10-13w. Rig.
W. J. Hartley's No. 1 Galbreath, SE cor. NW SE Sec. 29-5-12w ..... Shut down 3,394 ft.
English Drilling Co.'s No. 2 Pruitt, CNL NW SE Sec. 22-6-10w ..... Rigged up and shut down.
Red Bank Oil Co.'s No. 1 Shanklin, C NW Sec. 15-12-11w. Dry and abandoned 4,603 ft.

OSAGE COUNTY

White Eagle Oil & Ref. Co.'s No. 1, SE cor. NE Sec. 25-26-6 ..... Dry and abandoned 2,802 ft.

STEPHENS COUNTY

Wade-Martin & Smythe's No. 1 Vestal, NE cor. SE Sec. 20-2-5w ..... Dry and abandoned 2,510 ft.
Stahl & Burris' No. 1 Jefferson, SE cor. NE NW Sec. 2-1-7w ..... Drlg. 2,576 ft.

SEMINOLE COUNTY

Prairie Oil & Gas Co.'s No. 1 Davis, NE SE Sec. 21-10-7..Rigging up standard tools 3,665 ft.
Superior and Fuhrman's No. 1 Fay, NW cor. SE SW Sec. 27-11-6 ..... Underreaming 4,674 ft.
Magnolia Pet. Co.'s No. 1 Germany, SE cor. NW Sec. 30-9-5 ..... Drlg. 4,395 ft.
Phillips Pet. Co.'s No. 1 Miller, NW cor. SW Sec. 34-11-7 ..... Drlg. 2,300 ft.
Burke-Greis Oil Co.'s No. 1 Cyrus, SE cor. NE NW Sec. 13-9-7 ..... Drlg. 3,355 ft.
Harris and others' No. 1 Stidham, SE cor. NW Sec. 30-9-8 ..... Dry and abandoned 4,582 ft.
C. B. Shaffer's No. 1 Carolina, SE cor. SW NE Sec. 4-6-7. Drlg. 4,725 ft.
E. W. Whitney's No. 1 Harjo, NE cor. NW NE Sec. 25-7-6 ..... Plugged back 4,325 ft., and shut down.
Gypsy Oil Co.'s No. 1 Andrews, NE SE NW Sec. 27-10-7 ..... Shut down 3,730 ft.
Shaffer Oil & Ref. Co.'s No. 1 Catchochee, SW cor. SW NE Sec. 18-10-7 ..... Shut down 3,730 ft.
Prairie Oil & Gas Co.'s No. 1 Rogers, SE cor. NE SE Sec. 14-10-6 ..... Dry and abandoned 4,729 ft.
T. W. Adkins' No. 1 Reed, NE cor. NW Sec. 2-8-8..... Drlg. 3,456 ft.
T. B. Slick, Inc.'s No. 1 Tiger, NW cor. SW NE Sec. 13-8-5 ..... Recementing 5-inch, 4,493 ft.
Magnolia Petroleum Co.'s No. 1 Sissy, NW cor. NE Sec. 33-8-7 ..... Wilcox 4,332-42 ft.; hole full of water; dry and abandoned.
McCulloch Oil Co.'s No. 1 McGilbray, SW cor. SW NE Sec. 4-8-8 ..... Bad hole, 1,450 ft.
Empire Gas & Fuel Co.'s No. 1 Harjo, SW cor. NW SE Sec. 17-7-6 ..... Hole full water, Wilcox 4,593-4,600 ft.
Marland Oil Co.'s No. 1 Strothers, NW cor. SE NE Sec. 5-10-7 ..... Fishing 3,550 ft.
Magnolia Pet. Co.'s No. 1 Carroll, SW cor. NW SE Sec. 1-7-5 ..... Drlg. 3,075 ft.
T. B. Slick, and others' No. 1 Davis, NE cor. NE Sec. 26-6-6 ..... Spudded.

TILLMAN COUNTY

Allen & Treadwell's No. 1 Howell, NW cor. SE Sec. 13-1-17w ..... Drlg. 490 ft.

MAJOR COUNTY

Randau & Mooney's No. 1 Parker, SE cor. NE NW Sec. 4-23-16w ..... Show of oil 1,235 ft.; shut down
Earl and others' No. 1 Turner, C NE NE Sec. 28-20-14w.. Rig.
Wilson et al's No. 1 Unknown, NE cor. NE Sec. 4-23-16w. Cellar.

WOODS COUNTY

E. K. Miller's No. 1 Copenhavers, NW cor. NW Sec. 18-24-13w ..... Rig.
Gypsy-Prairie and others' No. 1 Thompson, SE cor. SW Sec. 10-26-15w ..... Set surface pipe.
Sinclair Oil & Gas Co.'s No. 1 Thompson, C SW SW Sec. 33-27-16w ..... Rig.

MURRAY COUNTY

Bison Oil Co.'s No. 1 Labor, NW cor. NW Sec. 17-1-2.... Drlg. 1,770 ft.

DEWEY COUNTY

Huckaby & McCoy's No. 1 Perfect, NE cor. NE Sec. 9-18-15w ..... Shut down 4,355 ft.
Don Sifers' No. 1 Jordan, SW cor. NW Sec. 16-16-17w.... Spudded and shut down.

BECKHAM COUNTY

C. & H. Petroleum Co.'s No. 1 Barnes, SW cor. NW NE Sec. 32-9-22w ..... Shut down 3,460 ft.
Martin and others' No. 1 Cluck, NW cor. SE Sec. 1-8-25w. Drlg. 2,540 ft.
L. C. Hivicks' No. 1 Davis, C NW NE Sec. 4-11-26w..... Shut down 725 ft.
Producers Exploration Co.'s No. 1 Seidell, SE cor. SW SW Sec. 17-9-22w ..... Shut down 2,402 ft.
Carson and others' No. 1 Danby, SW cor. SE NE Sec. 20-8-22w ..... Drlg. 570 ft.
Pferffel and others' No. 1-A Carter, NE cor. NE Sec. 35-9-22w ..... Shut down 1,500 ft.
Day Oil Co.'s No. 1 Ault, NW cor. NW Sec. 33-8-21w.... Drlg. 1,400 ft.

GRADY COUNTY

Remington and others' No. 1 Fryrear, SW SW NE Sec. 13-9-5w ..... Shut down 720 ft.
J. V. Bailey's No. 1 Hubbard, C NE NW Sec. 1-10-6w.... Spudded and shut down.
J. M. Henry and others' No. 1 Abraham, SE cor. NW Sec. 4-6-8w ..... Rig.
Commerce Developments Co.'s No. 1 Taylor, C NE NW Sec. 4-3-7w ..... Testing sand 2,410-21 ft.
J. B. Nichols' No. 1 Brake, SE cor. NE SE Sec. 7-5-7w... Shut down 2,307 ft.

McINTOSH COUNTY

Marione and others' No. 1 Smith, SW cor. NW SE Sec. 32-9-16 ..... Shut down 2,387 ft.; corrected.
Patterson and others' No. 1 Smith, SW cor. NW SE Sec. 32-9-16 ..... Shut down 5,451 ft.
Wolfe and others' No. 1 Unknown, NW cor. SE Sec. 15-12-18 ..... Rig on ground.

CLEVELAND COUNTY

Daniels & LeWright's No. 1 Vandever, C SW Sec. 15-1-1w ..... Shut down 3,130 ft.
Phillips Pet. and T. B. Slick's No. 1 Hentleman, NE cor. NE Sec. 8-10-2w ..... Rig.

KIOWA COUNTY

Blue Mountain Oil Co.'s No. 1 Jones, SE cor. NW NW Sec. 17-5-14w ..... Shut down 530 ft.
Sloan-Russell's No. 1 Rushton, NE cor. SW SE Sec. 6-5-14w ..... Abandoned 1,524 ft.
J. M. Burke's No. 1 Fox, SW cor. NW Sec. 4-6-16w.... Shut down 937 ft.
Johnson & McDowell's No. 1 Thompson, SW cor. NE Sec. 6-6-15w ..... Shut down 2,150 ft.
Adams et al's No. 1 Fanning, NW cor. SW Sec. 2-6-17w.. Machine.
Dave Malernee's No. 1 Van Kirk, NW cor. NW Sec. 35-7-15w ..... Shut down 858 ft. in granite.
Sloan-Russell's No. 1 fee, NE cor. NE Sec. 31-6-14w.... Location abandoned.
A. C. Varner and others' No. 1 Bonham, CSL NW NW Sec. 5-6-18w ..... Shut down 1,127 ft.

CUSTER COUNTY

W. E. Witt's No. 1 Wellman, C SE Sec. 1-14-14w..... Rig and tools.

PONTOTOC COUNTY

Moore & Curran's No. 1 Allen, SE cor. SW SW Sec. 23-5-5 ..... Shut down 1,460 ft.
Shell Pet. Corp.'s No. 1 Folsom, NW cor. SW Sec. 20-4-4 ..... Dry and abandoned 2,610 ft.
Texas Pacific Coal & Oil Co.'s No. 1 Stewart, C SW NE Sec. 11-5-8 ..... Dry and abandoned 3,509 ft.
American Oil Refining Co.'s No. 1 Jones, NE cor. NE Sec. 18-5-5 ..... Sand 2,500-40 ft., swab 40 bbls.

GARVIN COUNTY

R. F. Garland's No. 1 Strickland, SW NW SW Sec. 10-4-3 ..... Dry and abandoned 3,493 ft.

COMANCHE COUNTY

Green and others' No. 1 Wilson, C NE SW Sec. 14-1-12w.. Shut down 4,055 ft.
Wirt Franklin Pet. Co.'s No. 2 Holler, NW cor. NW Sec. 2-4-11w .. .. Drlg. 2,092 ft.

COAL COUNTY

McCrow and others' No. 1 Patton, SW SE NE Sec. 35-1-8 ..... Shot 30 qts. 1,850-85 ft.; pumping 11 bbls.
Indian Territory Illuminating Oil Co.'s No. 1 Cook, SW cor. NW Sec. 10-1-11. ..... Drlg. 5,270 ft.
Robert Galbreath and others' No. 1 Jones, SW cor. SE Sec. 24-1-9 ..... Drlg. 3,270 ft.

PITTSBURG COUNTY

McAylor and others' No. 1 Reed, NW cor. SW NW Sec. 7-6-14 ..... Abandoned 1,103 ft.
Kerr & Koy's No. 1 Hall, C NW NW Sec. 32-4-12..... Spudded.

JACKSON COUNTY

Altus Oil Co.'s No. 1 Northington, NE cor. NE Sec. 4-1-20w ..... Shut down 2,020 ft.

SOUTHERN OKLAHOMA

BRYAN COUNTY

Alexander & Oppenheimer's No. 1 Hampton, SE cor. NE Sec. 26-7s-11 ..... Shut down 1,425 ft.
McNull & Gross' No. 1 Smith, CEL SE NW NE Sec. 11-6s-9e ..... Drlg. 300 ft.

MURRAY COUNTY

Alter and others' No. 1 Johnson, SW cor. NW Sec. 14-4-7. Spudded and shut down.

COTTON COUNTY

Cuyler & Pyson's No. 1 Thomas, SE cor. SE SW Sec. 16-4-12w ..... Shut down 2,127 ft.
G. E. Crane and others' No. 1 Montgomery, C NW NE Sec. 33-2s-9w ..... Dry and abandoned 3,505 ft.

JEFFERSON COUNTY

Fritz and others' No. 1 Barrett, C SE SE Sec. 5-6s-7w.... Dry and abandoned 2,269 ft.
Bridwell and others' No. 1 Spring, NE cor. NW SE Sec. 25-6s-6w ..... Dry and abandoned 2,172 ft.
Bridwell et al's No. 1 Trout, CEL NE Sec. 33-6s-6w.... Shut down 625 feet.
Amerada Pet. Corp.'s No. 1 Emerson, NW cor. SE SW, Section 28-5s-8w ..... Shut down 4,516 ft.

CHOCTAW COUNTY

Choctaw Petroleum Co.'s No. 1 Wilson, SW cor. SW Sec. 16-6-19 ..... Shut down 1,346 ft.

TILMAN COUNTY

Bray and others' No. 1 Barker, NE cor. SW NW Sec. 9-1-15w ..... Shut down 805 ft.
Dixie Oil Co.'s No. 1 McKinney, NE cor. NE Sec. 29-3s-18w ..... Drlg. 1,400 ft.
A. N. Pearson's No. 1 Mounts, SW cor. SW Sec. 3-5s-15w.. Dry and abandoned 3,203 ft., show heavy oil.
Stanley & McGregor's No. 1 Mock, NW cor. NW SW Sec. 33-1-20w ..... Dry and abandoned 2,445 ft.
Landfair and others' No. 1 Smith, SE SW SE Sec. 6-2s-15w ..... Shut down 2,535 ft.

JOHNSTON COUNTY

Wapanucka Oil Co.'s No. 1 Banks, Sec. 28-2s-9 ..... Shut down 1,530 ft.
Bush Creek Oil Co.'s No. 1 Kirby, SE cor. NE NW Sec. 9-4-7 ..... Shut down for casing 405 ft.
Smith & Kinsley's No. 1 Lane, SE cor. NW Sec. 29-1-7... Shut down 1,306 ft.
Yale Oil Syndicate's No. 1 Craige, C NW NE Sec. 36-9s-9e ..... Fishing 830 ft.
Sullivan and others' No. 1 Wines, NW NE NW Sec. 11-7s-5e ..... Shut down 475 ft.
E. J. Stump and others' No. 1 McGinnis, SW Sec. 26-3s-8w ..... Rig.
McCrow and others' No. 1 Trust, SW Sec. 12-1s-8e..... Drlg. 1,035 ft.

CARTER COUNTY

Devonian Oil Co.'s No. 1 Myer, NW cor. SE Sec. 19-5s-3w. Drlg. 915 ft.
Avon-Dickey's No. 1 Anderson, NW cor. SE NE SE Sec. 32-4s-2 ..... Spudded.
Schermerhorn Oil Co.'s No. 2 Joliff, NE NW Sec. 24-5s-1e ..... Rigging up.
Humble Oil & Ref. Co.'s No. 1 Hitchcock, SE NE Sec. 12-4s-3e ..... Drlg. 435 ft.

SOUTHWEST TEXAS

(Continued from Page 46)

east line, has derrick up. The Texas Company's No. 2 Hahl, Survey 250, Block 18, located 450 feet to north line and 150 feet to west line, is drilling at 1,600 feet.

Randado Field—Jim Hogg

Magnolia Petroleum Co.'s No. 41 Merchants State Bank, Survey 155, located 150 feet to north and east lines, is drilling at 2,610 feet. Randado Oil Corp.'s No. 27 Palacious, Survey 291, is drilling at 1,100 feet.

Alworth Field

Alworth-Stevens-Hild's No. 15 M. Garza, Survey 39, Block 9, located 300 feet to northwest lines and 410 feet to southwest lines, is testing at 1,028 feet. Brooklyn Oil Co.'s No. 1 Garza, Survey 40, Block 2, located 150 feet to northeast and southeast lines, has sand at 1,990-94 feet.

Reiser Field—Webb

Marts & Beaven's No. 2 Johnson, Survey 602, Block 11, located 550 feet to west line and 250 feet to north line, is moving on. W. O. Wheatley's (R. C. Holsworth) No. 1 Wheatley, Survey 1,569, Block 3, located 847.7 feet to north line and 305.2 feet to east line, is drilling at 1,900 feet. Cosner-Danmier's No. 1 D. Benavides, Survey 11, Block 6, located 150 feet to northeast lines and 350 feet to southeast lines, is moving on.

Albercas Field

O. W. Killam's No. 31 Bruni, Block 64, located 2,456 feet to south line and 1,390 feet to west line, has set casing at 2,204 feet; No. 32 Bruni, Sun Oil Co.'s No. 10-A Yeager-Strohman, Share 5, located 475 feet to north line and 150 feet to west line, is testing sand at 2,164 feet; No. 11-A Yeager-Strohman, Share 5, located 4,375 feet to north line and 150 feet to west line, has sand at 2,147-65 feet. Magnolia Petroleum Co.'s No. 13 Yeager-Strohman, Share 5, located 150 feet to west line and 750 feet to south line, is drilling at 3,798 feet; No. 14 Yeager-Strohman, Share 5, located 900 feet to north line and 575 feet to east line, has derrick up; No. 15 Yeager-Strohman, Share 5, located 1,400 feet to north line and 575 feet to east line, has derrick up. Rycade Oil Corp.'s No. 8 Yeager-Strohman, Share 5, located 1,950 feet to north line and 150 feet to east line, is rigging up; No. 9 Yeager-Strohman, share 5, located 2,250 feet to north line and 150 feet to east line, has been spudded in.

Aviator or Bruni Tracts

G. C. Sally's No. 1 Puig, Carter-Pinkton tract of Puig ranch, 220 feet to west line and 150 feet to south line, is rigged up and standing. The Texas Company's No. 1 Bruni, Block 74, is drilling at 800 feet.

Carolina-Texas Field

C. R. Milleer's (Miller-Daniels) No. 1 de la Garza, Survey 48, Block 47, located 150 feet to north and east lines, is testing at 2,245-58 feet. W. R. Shankle's No. 1 Webster, NE SE, Survey 684, located 150 feet to south and west lines, is drilling at 1,000 feet. Foster Barnsley's (Barnsley and others) No. 1 Webster, NE SW, Survey 684, located 510 feet to north line and 150 feet to east line, is drilling at 1,800 feet. Barnsley-Scharf-Kirk's No. 2 de la Garza, Survey 335, Block 21, located 200 feet to north line and 150 feet to east line, is drilling at 600 feet.

Magnolia-Cole Field

Cole Petroleum Co.'s No. 66 Benavides, Survey 412, Block 4, located 631 feet to east line and 160 feet to north line, is coring for sand. Houston Oil Co.'s No. 4-D Benavides, Survey 753, Block 13, is location 160 feet to south line and 822.5 feet to east line; No. 17-D Benavides, Survey 753, Block 5, is location 100 feet to south and west lines. Magnolia Petroleum Co.'s No. 1 Benavides, SE SW, Survey 660, located 150 feet to south and west lines, is location; No. 1 Benavides, Survey 697, Block 10, is location 150 feet to north and east lines. Houston Gulf Gas Co.'s No. 1 S. Benavides, Survey 693, located 1,470 feet to south line and 150 feet to west line, has set casing at 2,298 feet.

Cole Gas Field—Duval-Webb Counties

O. W. Killam's No. 1 Bruni, Survey 9, located 1,700 feet to northwest lines and 700 feet to northeast lines, is rigging up. J. G. Mackay's No. 2 Richardson, Survey 5, located 160 feet to north and west lines, is location.

Jennings Field—Zapata

O. W. Killam's No. 9 Cuellar, Cerrito Blanco grant, 643 feet to southwest lines and 703 feet to southeast lines, has sand at 1,462 feet. Charles L. McCaslin's No. 1 R. Cuellar, Survey 278, located 3,260 feet to east line and 3,578 feet to north line, is drilling at 200 feet; No. 1 R. Hinnant, Survey 74, located 2,390 feet to west line and 630 feet to south line, has derrick up. South Texas Production Co.'s No. 3 Jennings, Cerrito Blanco grant, is making location.

Charco Redondo

W. R. Duke's No. 3 Martinez, Block 22, W. R. Duke Subdivision, 1,300 feet to northwest lines and 840 feet to northeast lines, is moving on.

Yoast Field—Bastrop

Amerada Petroleum Corp.'s No. 1 A. Yoast, A. Garcia Survey, 600 feet east of discovery well, is still working on test, total depth 1,767 feet. Judge Batts' No. 1 White, 2 miles northwest of discovery well, is drilling at 1,000 feet. E. B. Germany's No. 1 Stork, H. Stewart Survey, is location 150 feet to north and east lines. Sun Oil Co.'s No. 1 Yoast, A. Garcia Survey, 1,650 feet to northwest lines and 150 feet to northeast lines, has derrick up. The Texas Company's No. 1 A. Yoast, A. Garcia Survey, 450 feet to southwest lines and 150 feet to northwest lines, is in Serpentine at 1,233 feet.

Bruner (Salt Flats) Field—Caldwell

Pat Armstrong's No. 1 E. Martin, A. Floyd Survey, 150 feet to northeast lines and 410 feet to southeast lines, is standing at 2,850 feet. Tip De Arman's No. 1 R. W. Carter, Gerren Hinds Survey, 120 feet to west line and 148 feet to north line, at 1,250 feet cratered and gas is still running wild. J. S. Abercrombie Oil Co.'s No. 2 Lida Moses, A. Floyd Survey, 450 feet to west line and 150 feet to north line, is drilling in at 2,733 feet; No. 4 Lida Moses, A. Floyd Survey, 150 feet to south and west lines, is in chalk at 2,486 feet; No. 5 Lida Moses, A. Floyd Survey, is drilling at 2,307 feet in chalk topped 2,282 feet.

Brawn and others' No. 1 R. W. Carter, Gerren Hinds Survey, 150 feet to south and west lines, is in Georgetown at 2,607 feet, topped 2,560 feet and has set and cemented casing. Cranfill & Reynolds' No. 1 S. Smith, A. Floyd Survey, 150 feet to south and west lines, is in Edwards at 2,685 feet. D. F. Bryan's No. 1 Davis, G. Hinds Survey, is location. Golden West Oil Co.'s No. 1 Cook, A. Floyd Survey, 480 feet to northeast lines and 170 feet to northwest lines, at 2,701 feet set liner and is flowing a little oil; No. 1 Wilson, A. Floyd Survey, 150 feet to northwest and southwest lines, is in Edwards at 2,692 feet, set liner and is flowing little oil; No. 6 Wilson, A. Floyd Survey, 300 feet southeast of No. 4, is drilling in at 2,680 feet. Gulf Production Co.'s No. 3 William Smith, 300 feet north of No. 2, is in Taylor marl at 2,291 feet; No. 4 William Smith, 300 feet north of No. 3, topped Del Rio at 2,598 feet and is drilling at 2,609 feet; No. 5 William Smith, 300 feet north of No. 4, is in shale at 1,498 feet; No. 6 William Smith, 300 feet north of No. 5, is rigging up; No. 7 William Smith, 300 feet north of No. 6, is standing; No. 1 Connally, A. Floyd Survey, 150 feet to south and west lines, is in top of chalk at 2,264 feet. Guerrin & Gastor's No. 1 Davilla, Isaac Weldon Survey, is location in southeast corner.

Humble Oil & Refining Co.'s No. 1 J. B. Tiller topped chalk at 2,238 feet and is drilling at 2,263 feet; No. 2 J. B. Tiller is drilling at 2,079 feet in Taylor marl; No. 1 J. J. Davis, A. Floyd Survey, 150 feet to north line and 453 feet to west line, is location; No. 2 J. J. Davis is location; No. 1 W. W. Hickman, Gerren Hinds Survey, 150 feet to north and east lines, has steel derrick up; No. 1 William Smith, A. Floyd Survey, 150 feet to south and west lines, is at 2,685 feet waiting to drill in; No. 2 William Smith, A. Floyd Survey, is drilling at 1,772 feet; No. 2 W. F. Davis at 2,702 feet total depth and set and cemented casing at 2,683 feet; No. 2 Floyd Tiller, G. Hinds Survey, 150 feet to north and west lines, is location. J. B. Jarmon's No. 1 Carter, Gerren Hinds Survey, is rigged up and standing. C. E. Lange's No. 1 W. P. Walker, G. Hinds Survey, 150 feet to north and west lines, is in chalk at 2,345 feet; No. 2 W. P. Walker, G. Hinds Survey, 150 feet to west line and 214 feet to south line, is drilling at 1,500 feet; No. 1 Kate Colding, A. Floyd Survey, 150 feet to northwest lines and 112 feet to northeast lines, has set 10-inch surface casing. Lutex Oil, Inc.'s No. 5 Davis, A. Floyd Survey, is drilling at 2,308 feet. Linderman and Atlantic's No. 1-A W. F. Davis, A. Floyd Survey, 150 feet to northwest and northeast lines, is bailing at 2,730 feet. Plum Creek Oil Co.'s No. 1 E. L. Mayton, Hector McNeil Survey, has been taken over at 240 feet by the Speer Well Oil Co.

H. C. Ratcliff and others' No. 1 Cora Malone, A. Floyd Survey, 150 feet to north and west lines, is at 2,694 feet standing. Shell Petroleum Corp.'s No. 1 R. W. Carter, Gerren Hinds Survey, 150 feet to north and west lines, at 2,692 feet in Edwards is showing oil; No. 1-B Carter, Gerren Hinds Survey, 150 feet to south and west lines, has derrick up; No. 1 William Moses, A. Floyd Survey, 150 feet to south and east lines, is drilling at 2,350 feet in chalk topped 2,200 feet; No. 2 William Moses, 300 feet north of No. 1, is location; No. 3 W. L. Smith, A. Floyd Survey, 150 feet to south and east lines, at 2,695 feet is deepening to Edwards; No. 4 W. L. Smith, A. Floyd Survey, 150 feet to south and west lines, is drilling at 2,540 feet in Del Rio; No. 5 William Smith, A. Floyd Survey, 150 feet to north line and 325 feet to east line, is drilling at 2,066 feet; No. 1 Floyd Tiller, G. Hinds Survey, 750 feet to east line and 150 feet to south line, is drilling at 1,264 feet; No. 1 J. Smith, A. Floyd Survey, 150 feet to north and east lines, is drilling at 2,710 feet, Edwards topped 2,704 feet. Sun Oil Co.'s No. 4 Malone, A. Floyd Survey, 1,033 feet to northwest lines and 150 feet to northeast lines, at 2,357 feet, total depth, has set casing at 2,319 feet. Stover & May's No. 1 Bell, Luling Survey, Block 24, is location 20 feet to north and west lines of lot; No. 1 Edwards, Block 5, is location. The Texas Company's No. 1 Moses, G. Hinds Survey, 150 feet to CWL, is drilling at 2,554 feet; No. 1 M. Merriweather, A. Floyd Survey, 150 feet to northeast lines and 500 feet to southeast lines, is drilling in; No. 3 Merriweather, offset to Ratcliff's No. 1 Malone, has derrick up; No. 4 Merriweather is location and offsets North & South's well; No. 5 Merriweather, A. Floyd Survey, is location 150 feet to northwest and northeast lines. M. K. Towns' No. 2 W. W. Hickman, Gerren Hind Survey, 150 feet to north and west lines, at 2,701 feet, is reaming to set casing, Edwards topped at 2,699 feet; No. 3 W. W. Hickman, A. Floyd Survey, 150 feet to CWL, is drilling at 2,441 feet in base of chalk. S. C. Wagley's No. 1 Gregg, A. Floyd Survey, is location 150 feet to south and east lines.

Lockhart Field

Pat Armstrong's No. 1 Heidenheimer, John R. Miller Survey, 450 feet to north line and 150 feet to east line, is building derrick. Neumann & McIntire's No. 1 J. O. Patton, John R. Miller Survey, 150 feet to north and west lines, cored chalk at 1,943 feet showing considerable oil. The Texas Company's No. 2-B Branyon, John R. Miller Survey, 1,580 feet to west line and 150 feet to south line, at 1,920 feet is in the chalk and showing some oil.

Sullivan Field—Gonzales

Cranfill & Reynolds' No. 1 J. F. Webb, Winslow Turner Survey, south offset to No. 1 Norwood, discovery well, is moving in rig.

Luling Field—Guadalupe

A. B. A. Oil Co.'s No. 4 Britton Harris is shut down at 1,250 feet for repairs. Magnolia Petroleum Co.'s No. 2-B McKean is drilling at 2,171 feet in the Harriett Cottle Survey.

Kingsville Field—Kleberg

Humble Oil & Refining Co.'s No. 4 Flato, Section 40, Lot 10, located 250 feet to east line and 450 feet to north line, is drilling at 3,706 feet.

Cartwright Field—Live Oak

Houston Oil Co.'s No. 1-A Brown Land & Cattle Co., M. B. Kivlin grant, is location.

Three Rivers Field

W. J. Walton's No. 3 C. H. Wedding, 300 feet west of No. 2, will probably be deepened from 1,578 feet.

Agua Dulce Field—Nueces

Alexander & Smith's No. 1 Bowers, Section 47, Richard King Subdivision, 150 feet to south line and 265 feet east of center of tract, at 2,503 feet is standing, dry, having reached contract depth and may deepen. Davis, Horn and others' No. 1 Thomas Ragland, Manton & Briggs Subdivision, Lot 13, SW cor., is standing at 416 feet. R. & G. Corp.'s No. 1 Ed Allen, Ross Peters Subdivision, Block 6, NW cor., is drilling at 3,680 feet with sand at 3,460 feet dry.

Saxet Field

Saxet Gas Co.'s No. 5 Dunn is location 1,500 feet southwest of No. 1 Dunn, discovery well of the field.

Refugio Field—Refugio

Houston Gulf Gas Co.'s No. 2 Shelly, Refugio town tracts, has set casing at 3,694 feet; No. 1 Fox, Refugio town tracts, is an old producer and is washing down to deepen; No. 3 Fox, Refugio town tracts, center of Lot 4, Block 5, at 3,300 feet is rebuilding derrick and going back in to deepen; No. 7 James Agnes Lambert, Refugio town tracts, 6,750 feet to east line of Lambert land and 2,000 feet to north line, is drilling at 3,900 feet; No. 3 Rea, Block 5, at 3,475 feet, set casing. William M. Morgan's No. 1 Rooke, NE cor. of lease and 1,000 feet southwest of Texas Gas Co.'s No. 1 Claude Heard, is coring at 3,540 feet. William F. Morgan's No. 2 James Agnes Lambert, 250 feet to south line and 375 feet to east line of Tract 8 of Lambert Subdivision, at 3,407-14 feet cored water sand. Saxet Gas Co.'s No. 5 Claude Heard, 300 feet south of No. 4, is drilling at 1,600 feet. Union Exploration Co.'s No. 1 Holmes Heard, Refugio town tracts, Tract 3, Block 8, located 150 feet to south and east lines, is drilling at 1,100 feet; No. 1 Leslie Adkins, Block 8, town tracts, 150 feet to south and east lines, is drilling at 1,900 feet.

West Field—Zavala

Tritex Oil Co.'s No. 1 Clay Burns is surveying for location 2 miles northwest of West ranch; No. 4 West is drilling; No. 1 Childress is location in townsite of La Pryor.

Abandoned Tests

Bexar County

Dingman Oil Co.'s No. 1 Feldman, William Small Survey, has been abandoned dry at 1,391 feet.

Crouch and others have abandoned location made half mile south of Adkins.

Caldwell County

J. T. Barlow's (M. S. Holliday) No. 1 Bouldin, 4 miles north of Luling, has been abandoned at 3,070 feet.

Lutex Oil, Inc.'s No. 1 Wilson has been abandoned at 2,723 feet dry in the Bruner Field.

Golden West Oil Co.'s No. 5 Wilson, A. Floyd Survey, a location, has been abandoned.

Jim Hogg County

Brooklyn Oil Co.'s No. 1 Garza, Survey 40, Block 2, at 2,115 feet, has been abandoned dry.

Victoria County

Humble Oil & Refining Co.'s No. 1 R. B. Roos, near Nursery, has been completed at 700 feet.

Webb County

J. G. Mackay's No. 2 Richardson, a location, has been abandoned due to lease forfeiture.

G. C. Sakley's No. 1 Puig, in Aviator Field, a location, has been abandoned.

Zapata County

R. V. Hill's No. 4 Ramirez, Survey 627, has been abandoned at 713 feet.

New Locations

Bastrop County

Atlantic Oil Producing Co.'s No. 2 A. M. Yost, A. Garcia Survey, is location 1,950 feet to northwest lines and 150 feet to southeast lines.

Gulf Production Co.'s No. 1 A. M. Yost, A. Garcia Survey, is location 1,593

feet to northwest lines and 150 feet to northeast lines.

Bexar County

Humble Oil & Refining Co.'s No. 2 Oppenheimer, J. M. Urriegas Survey, is location 300 feet worth of the No. 1.

Caldwell County

Gulf Production Co.'s No. 2 J. J. Davis, A. Floyd Survey, 150 feet to south and east lines, is drilling at 2,550 feet in Del Rio.

Humble Oil & Refining Co.'s No. 1 T. B. Johnson, James Hinds Survey, 600 feet west of No. 1, is skidding rig from No. 1.

Gulf Production Co.'s No. 8 William Smith, A. Floyd Survey, is moving in derrick.

Golden West Oil Co.'s No. 2 Cora Malone, A. Floyd Survey, 50 feet southeast of No. 1, is skidding over derrick from No. 1.

Shell Petroleum Corp.'s No. 1 School Land, has set 12½-inch casing at 95 feet. No. 1 Malone, is location; No. 2 Malone, has set casing at 62 feet; and No. 2 F. Tiller has set casing at 53 feet.

Roger & Heap's No. 1 F. W. Forrestor, Thomas J. Halton Survey, northeast of Lockhart, is drilling at 800 feet.

Karnes County

W. E. Hewitt's No. 1 W. E. Porter, 6 miles south of Runge, has been spudded in.

Guadalupe County

Magnolia Petroleum Co.'s No. 1 M. Schubert, is location in the Luling Field.

Lavaca County

The Texas Company's No. 1 Russek, H. Martin Survey, 150 feet to south and west lines, is drilling at 60 feet.

Nueces County

Agua Dulce Oil & Gas Co.'s No. 1 Sanders, Benton's pasture, Section 35, located 1,980 feet to west line and 660 feet to north line, is rigging up.

Refugio County

Houston Oil Co.'s No. 1 Blanco River is location.

Mission Drilling Co.'s No. 1 Nellie B. Cummins, is rigging up.

Mission Drilling Co.'s No. 3 Rogers Estate is erecting derrick.

Uvalde County

Pure Oil Co.'s No. 2 J. D. Smythe, G.C.&S.F.Ry. Survey 687 south central, 1,920 feet south and 265 feet east of the No. 1, is rigging up.

Victoria County

Humble Oil & Refining Co.'s No. 1 Kohutek, is rigging up, located near Nursery.

Webb County

Sun Oil Co.'s No. 12-A Yeager-Strohman, Share 5, Albercas Field, 4,675 feet to north line and 150 feet to west line, has derrick up.

Sun Oil Co.'s No. 13-A Yeager-Strohman, Share 5, 4,975 feet to north line and 150 feet to west line, has derrick up.

Zapata County

John Pappas' No. 1 Cuellar, Block 5, Porcion 33-34, has derrick up.

SOUTHWEST WILDCATS

(Continued from Page 46)

150 feet to south and east lines, is drilling at 3,250 feet. Crays & McCardle's No. 1 Hicks & Hicks, Perdernal grant, south part, 150 feet to northeast lines and 200 feet to southeast lines, is moving on.

Webb County

Edouard Raymond's No. 1 Schmellzer, Share 2, J. Galan grant, Brewster pasture, is moving on. G. S. Lumpkin's No. 1 H. Yeager, Porcion 33-34-35, Block 17, located 1,170 feet to east line and 150 feet to south line, is location.

Zapata County

National Oil Co.'s No. 1 Don B. Adams, Section 11, Block 4 of subdivision of Don B. Adams tract, has derrick up. R. V. Hill's No. 4 Ramirez, Survey 627, located 785 feet to northeast lines and 450 feet to northwest lines, is standing at 713 feet.

Bastrop County

Gypsy Producing Co.'s No. 1 Lottman estate is shut down at 2,146 feet. Billy Mayfield's No. 1 McColl, Stephen F. Austin Survey, 50 yards west of No. 1, is in rock at 575 feet.

Bexar County

Amelia Balgart's No. 1 Adams, Cortari Survey No. 5, is location in northwest corner. Allen Burnam's No. 1 Ward, A. A. Gardiner Survey, is at 1,600 feet in Edwards. Dixie Oil Co.'s No. 1 Medina Irrigation Co., William Miller Survey No. 180, located 1,666 feet to north line and 470 feet to west line, spudded in and shut down. George F. Hinton is making location 2 miles south of Gas Ridge. William M. Morgan's No. 1 E. S. Bridge, about 400 feet southeast of juncture of Hildebrandt and Gardner Roads, is moving in derrick. H. J. Moore's No. 1 Holly R. Ellison, T. York Survey, 2,916 feet to east line and 1,500 feet to south line, has spudded in.

Caldwell County

Fred Adams' No. 1 Burney, Gideon Pace Survey, northeast of Lytton Springs, is in Edwards at 2,802 feet and shut down. John V. Edwards' No. 1 W. C. Caldwell, Cornelius Crenshaw Survey, 600 feet to south line and 300 feet to east line, is in chalk at 1,570 feet. Gulf Production Co.'s No. 1 Reed, S. Seale Survey, west central part, is drilling at 2,188 feet.

Calhoun County

B. F. Thompson's No. 1 Thomas, John P. Tully Survey, 910 varas north, 5 feet 30 inches west of north corner of John C. Post Survey, is drilling at 2,319 feet after shut down for Christmas holidays.

Comal County

George Kruger's No. 1 Uecker, A. Gaytean Survey, located in SE corner is drilling at 100 feet.

Colorado County

National Oil Co.'s No. 1 H. T. Brandt, Freeman Pettus League, 150 feet to south line and 1,000 feet west of highway, is location.

Edwards County

McMan Oil & Gas Co.'s No. B-1 Walter Schreiner, H.E.&W.T.R.R. Survey, Section 50, Block F, 330 feet to south and east lines, is drilling at 3,880 feet. Gail Oil Co.'s No. 1 Neal Jergin, G.C.& S.F.R.R. Survey No. 2, located 1,000 feet to north line and 740 feet to east line, is drilling at 2,700 feet.

Frio County

Austin Johnson and others' No. 1 Schenburg, E. Gallager Survey No. 788, is location 1,250 feet to east line and 1,625 feet to south line. Pilgrim Oil Co.'s No. 2 Blackaller, James Gouley Survey, is shut down at 3,218 feet.

Fayette County

Marshall & Moore's No. 1 John A. Kerr, M. Muldoon League No. 5 about 250 varas to north line and little west of center of league, is at 2,078 feet. National Oil Co.'s No. 1 J. C. Melcher, S. M. Williams, league No. 1, located 300 feet to north and east lines, has been spudded in. R. E. Phalon's No. 1 Cervenka, Fayette County school lands, is drilling at 2,730 feet.

Goliad County

J. E. Alexander's No. 1 Bergman, Goliad Survey, Block 30, is located 250 feet to west line and 950 feet to south line, and is drilling at 500 feet. Southern Crude Oil Purchasing Co.'s No. 1 J. E. Pettus, near Cabeza Creek, is at 3,001 feet, contract depth, and is shut down to await orders and will probably be deepened.

Guadalupe County

Pat Armstrong's No. 1 Halm, Wakefield Survey, has derrick up. G. A. Greene's No. 1 B. B. Dix, Ira Nash Survey, 610 feet north of road and 320 feet to east line, has resumed drilling at 28 feet. J. J. Christie's No. 1 Taylor Thomas, Gustavus Shotwell Survey, 1,100 feet to southwest lines and 1,130 feet to southeast lines, at 1,053 feet in base of chalk, is showing some oil and is making drill stem test. Magnolia Petroleum Co.'s No. 1 C. H. Adams, J. Randolph Survey, 150 feet to southwest and southeast lines, is drilling at 3,066 feet. Miller Brothers' No. 1 Gib Springs, E. Cortari Survey, 450 feet to west line and 775 feet to south line, is drilling at 800 feet. T. H. Poole's No. 1 C. Woehler, John King Survey, 310 feet to north line and 210 feet to east line, is rigged up and standing.

Jackson County

J. B. Douglas' No. 1 C. O. Lowrance. John McHenry Survey, 720 varas to northwest lines and 3,700 varas to southwest lines, is shut down at 3,070 feet. The Texas Company's No. 1 W. C. Moore, I.&G.N. Survey No. 208, located 5,108 feet to south line and 150 feet to west line, is drilling at 2,820 feet. Wright Brothers' No. 2 Classen, 1,500 feet north, 10 degrees west of No. 1, is drilling at 3,218 feet; No. 6 Drushell is being deepened to deeper sand.

Hays County

Estess-Moore & King's No. 1 C. N. Sledge, Hunton & Jones Survey, 285 feet to northwest lines, is shut down at 804 feet.

Kinney County

Mardon Oil Co.'s No. 1 Jim Clamp, Survey 346, Section 1,492, is drilling at 2,135 feet.

Maverick County

Ryan Consolidated Petroleum Co.'s No. 2 Indio Ranch, Section 7, is drilling at 1,175 feet. Rycade Oil Corp.'s No. 3 Chittim, Section 116, Block 7, 10 feet to west line and 255 feet to south line, is rigging up; No. 3 Sullivan, Section 71, Block 7, located 520 feet to west line and 2,137 feet to south line, is drilling at 4,695 feet; No. 2 Chittim, Section 158, Block 7, located 350 feet to north and east lines, is cleaning out at 7,635 feet.

Medina County

California-Medina's No. 1 Rothe, Survey 1,012, is fishing at 3,278 feet. Donaldson Oil Development Co.'s No. 1 Adams, Survey 25, located 160 feet to east line and 1,227 feet to south line, at 1,870 feet is showing considerable gas and is making a drill stem test. Ferguson and others' No. 2 Odom, H. Castro Survey, is drilling at 200 feet. Holt & Cromwell's No. 1 Mott, Survey 1,267, located 2,250 feet to east line and 4,183 feet to south line, is shut down at 512 feet. Lynch and others' No. 1 Mott is down 300 feet. North & South Development Co.'s No. 1 Charles Nehr, Survey 441, located 150 feet to south line and 7,479 feet to east line, is drilling at 2,800 feet in the Glenrose. Richardson's No. 2 Tom Bendele, 75 feet north of No. 1, is drilling at 900 feet. Cecil Switzer is skidding rig from No. 1 over for No. 2 Zerr. Webster's No. 1 Odom is down 200 feet and drilling.

McMullen County

J. F. Locke's No. 1 Genser, J. T. Robbins Survey, is location in west central part.

Nueces County

Nueces River Basin Development Co.'s No. 1 F. C. Allen, G. Farrier Survey, 1,596 feet to south line and 474 feet to west line, is shut down at 2,908 feet.

Refugio County

Blanco Creek Oil Co.'s No. 1 St. John, J. Scott Survey, 708 feet to northwest lines and 3,074 feet to northeast lines, 6 miles northwest of Refugio Field, is drilling at 300 feet. Dunlap & Wilkinson's No. 1 Rooke, 10 miles south of the Refugio Field, is standing at 2,750 feet. J. M. Davis and Tom Horn's No. 1 Howard, Section 8, located 600 feet to north line and 2,640 feet to east line, is drilling at 1,500 feet. Magnolia Petroleum Co.'s No. 1 Glenewinkle, J. Scott Survey, 330 feet to south and east lines, is rigging up.

San Patricio County

George B. Pickett's No. 1 Whitworth, NW NW, Section 60, is drilling at 3,250 feet.

Travis County

Flynn Brothers' No. 1 St. Edwards University is drilling with spudding machine.

Victoria County

Houston Oil Co.'s No. 3 McFaddin is location; No. 2 Dr. Allen Kyle is at 725 feet.

GULF COAST FIELDS

(Continued from Page 51)

Rio Bravo Oil Co.'s No. 6-A Settegast on the west, an old well being drilled deeper, is drilling gumbo at 4,026 feet. This company also is preparing to deepen No. 9-A Settegast. On the northeast side, Shaw-Texas Exploration Co.'s No. 2-D Fitzsimmons is drilling hard, sandy lime at 4,155 feet. These operators' No. 3-E Fitzsimmons on an adjoining tract is drilling gumbo and lime at 2,800 feet.

On the east side of the dome, H. R. Cullen Saturday was preparing to test an oil sand at 3,980-4,020 feet in his No. 5 Howe, originally drilled to a total depth of 5,787 feet, where the hole was junked. Gulf Production Co.'s No. 7 Cain is drilling hard sand and shale at 4,427 feet, and its No. 2 Fitzsimmons-Hamman is drilling below 2,450 feet. No. 27 Taylor is ready to spud in. Navarro Oil Co.'s No. 3-A Cain is drilling sticky shale at 5,201 feet, and Navarro Oil Co.-Texas Exploration Co.'s No. 10 Dooley is drilling lime at 3,407 feet after sidetracking the former hole. Navarro Oil Co.-Humble Oil & Refining Co.'s No. 1 Dooley is drilling at 3,638 feet.

Moody Corp.'s No. 4-B Settegast, a wildcat on the south side of the dome, is sidetracking a second time at 3,000 feet. The original total depth was 3,796 feet.

Goose Creek—Harris County

Humble Oil & Refining Co.'s No. 74 Simms-Smith, deep wildcat northeast of the field, is drilling sand at 6,323 feet. This company's No. 10 Jones Stateland in the field, an old well worked over, was testing a sand at 2,505 feet as the week closed. Gulf Production Co.'s No. 35 Stateland is drilling at 2,391 feet and its No. 13 Paddoc-Smith at 2,688 feet.

Spindletop—Jefferson County

Yount Lee Oil Co. has set screen to test its No. 73 Gladys City at 3,111 feet. No. 74 Gladys City is drilling lime at 1,980 feet. No. 21 Gldays City is drilling lime at 3,666 feet. No. 15 Gladys City, a former producer, is to be worked over.

On this company's McFaddin lease, No. 20 is reaming at 3,498 feet. No. 50 is fishing at 3,497 feet. No. 53 is drilling a sand at 4,172 feet. No. 88 is drilling gumbo at 1,740 feet and No. 89 is in sand at 3,473 feet. No. 90 is drilling sand at 2,135 feet and No. 91 sand at 1,971 feet.

Yount Lee Oil Co.'s No. 2 fee is drilling sand at 3,737 feet, and its No. 1 Davis is in sand at 6,013 feet.

Gulf Production Co.'s No. 17 Marrs-McLean is drilling sandy shale at 5,201 feet. L. A. Painter's No. 2 Gordon is drilling below 3,847 feet.

Hull—Liberty County

Empire Gas & Fuel Co.'s No. 17 Barngrover is drilling below 3,787 feet. Gulf Production Co.'s No. 68 Phoenix has set strainer to test at 3,409 feet and No. 92 Phoenix is drilling at 2,364 feet. Humble Oil & Refining Co.'s No. 24 Guedry came in blowing dry gas at 3,200 feet and is standing. Republic Production Co.'s No. 25 Dolbear is drilling at 3,312 feet and this company's No. 27 Dolbear is drilling below 1,500 feet.

Liberty—Liberty County

Five completions in the new shallow sand area on the Liberty Dome were reported during the week leaving seven tests actually drilling Saturday, not including those ready to test. The drilling tests Saturday were Gulf Production Co.'s Nos. 2 and 3 Marrs McLean; Sun Oil Co.'s Nos. 24, 26, 27, 28 and 29. Gulf's No. 5 Chambers is pumping salt water and its No. 7 is being rigged up to pump. Gulf has made location for No. 4 Marrs McLean, and Sun Oil Co. has location for No. 31 Mitchell.

Sun Oil Co.'s No. 11 Mitchell, offset to Liberty Petroleum Co.'s No. 1 Turner, a wildcat producer completed several months ago north of the field, tested salt water at 1,171 feet and is shut down. In the same district Liberty Petroleum Co.'s No. 2 Turner is drilling plug at 1,512 feet and Painter Oil Co.'s No. 1 Turner is drilling at 310 feet. Empire Gas & Fuel Co.'s No. 1 O'Brien is standing as a location.

Sun Oil Co.'s No. 14 Mitchell, north edge test on the east flank deep sand, was swabbing to test sand at 3,512 feet as the week closed.

A mile northwest of the field, Vacuum Oil Co. is rigging up for No. 1 Trinity River. Because of the location being in a difficult place in the river and because of high water Vacuum has been since early in November getting a derrick up. The Texas Company has a location for No. 3 Pickett to offset the Vacuum test.

Orange—Orange County

Humble Oil & Refining Co.'s No. 12 Winfree tested salt water at 4,619 feet and has been shut down. Sun Oil Co.'s

No. 6 Brown is drilling below 5,965 feet and Supreme Oil Co.'s No. 1 Jackson is sidetracking at 3,148 feet.

Raccoon Bend—Austin County

Humble Oil & Refining Co.-Valley Oil Corp.'s No. 2 Walton has set 9⅝-inch casing to test an oil sand at 2,226-35 feet, an entirely new sand in this field. No. 1-C (A) Grawunder is drilling sand rock at 2,001 feet. No. 2 Hardy is drilling hard sand at 730 feet and No. 2 E. B. Wilson is drilling shale at 285 feet. No. 1 J. W. Wilson is a derrick and a location for No. 1 Kearns is standing.

DeWalt—Fort Bend County

Humble Oil & Refining Co.'s No. 4 Sugarland is in a sandy shale showing oil and gas at 3,494-3,560 feet and will be tested there. No. 2 Deatherage has started drilling and is down 352 feet in sand and clay. No. 1 Nelson is setting 9⅝-inch casing at 3,034 feet and No. 2 Camp is rigging up.

SOUTH LOUISIANA

Jennings—Acadia Parish

F. J. Getty's No. 1 Getty is drilling at 1,957 feet. Gulf Refining Co. is rigging up to deepen No. 36 Jennings-Clemont, a former well. Jennings Petroleum Co.'s No. 2 Eunice Crowley is drilling at 3,651 feet. E. F. Simms' No. 1 Grace Vonschuler is coring sand at 4,370 feet. The Texas Company's No. 4 Rayne (southeast flank) is drilling at 3,178 feet, and a location has been made for No. 6-B Latrielle. Yount Lee Oil Co.'s No. 3 Crowley is drilling lime at 5,695 feet and its No. 6 Housierre-Latrielle is in sand at 4,932 feet.

Edgerly—Calcasieu Parish

Green Oil Co. is cleaning out hole to deepen its No. 5 Moore. Rex Petroleum Co.'s No. 9 Hunter is drilling at 705 feet.

Lockport—Calcasieu Parish

Vacuum Oil Co.—Gulf Refining Co.'s No. 22 Miller is drilling sticky shale at 3,445 feet. No. 23 Miller is drilling sandy shale with a slight showing at 1,272 feet. Nos. 20, 21 and 22 Miller, also former wells, are to be deepened. No. 1 Henshaw-LeMoin is drilling sandy shale at 5,292 feet.

Vinton—Calcasieu Parish

Gulf Refining Co.'s No. 47 Star Vincent has set strainer and is washing to test at 2,912 feet. Edgerly Petroleum Co.'s No. 5 Vincent is drilling below 3,650 feet. Salt Dome Oil Co.'s No. 1 Shaw is drilling at 2,927 feet. Vinton Petroleum Co.'s No. 1 Matilda Gray is drilling at 1,101 feet. This company also has started to drill deeper in its No. 10 Vincent, an old well.

Hackberry—Cameron Parish

Calcasieu Oil Co.'s No. 12 Watkins, completed several weeks ago flowing 900 bbls. daily and which later sanded up, is trying to sidetrack strainer to drill deeper. This company's No. 1 Breaux is drilling sand at 4,380 feet. Cameron Oil Co.'s No. 1 Vincent is fishing at 2,821 feet. Cherokee Oil Co. has made location for No. 1 Duhon, Sutton Seiss & Green, a location for No. 1 Sonnier and Yount Lee Oil Co. a location for No. 1 Perkins, all in the recently opened producing area on the south side of the old Hackberry Dome. The latter has been spudded. Rycade Oil Corp.'s No. 1 Gulf Land is drilling shale at 3,891 feet. Yount Lee Oil Co.'s No. 8 School Land is drilling sand at 4,198 feet.

MISCELLANEOUS FIELDS

Texas

The Texas Company's No. 22 House at Humble is drilling gumbo and boulders at 2,788 feet. This company's No. 14 Koehler, same field, is drilling at 668 feet. Sinclair Oil & Gas Co.'s No. 5 Norton, Damon Mound, is drilling sticky shale at 3,652 feet. Rycade Oil Corp.-Humble Oil & Refining Co.'s No. 4 Hudson, Markham, has been spudded in. Gulf Production Co.'s No. 18 Moore, Orchard, is rigged up and ready to spud. Sun Oil Co.'s No. 1 Kovalcik, North Dayton wildcat, is drilling sand and lime at 3,968 feet.

South Louisiana

Rycade Oil Corp. has abandoned its No. 5 Bouillon fee, Bayou Bouillon Dome, St. Martin Parish, at a total depth of 3,872 feet. Its Nos. 2 and 4, former wells, still are pulling screen to deepen. No. 3 Atchafalaya fee is drilling at 4,213 feet and its No. 4 Atchafalaya fee at 4,173 feet.

Gulf Refining Co.'s No. 13 United Land Co., Sorrento Dome, Ascension Parish, is drilling below 1,650 feet but so far has not picked up the cap rock found productive in four other successful tests. This company at Starks, Calcasieu Parish, is rigging up to deepen its Nos. 11 Industrial, 5 and 6 Lutcher-Moore. Pure Oil Co.'s No. 7 Yount Lee Oil Co., Sweet Lake, Cameron Parish, is drilling sand at 4,037 feet. No. 8, also Sweet Lake, is drilling shale and shell at 3,145 feet.

Miscellaneous Wildcats

TEXAS

Brazoria County — Shell Petroleum Corp.'s No. 3 Reece, Allen Dome, is drilling hard, sandy lime at 2,245 feet. This company's No. 5 Allen is drilling sandy shale at 4,123 feet. No. 1 Random is milling out of casing preparatory to drilling deeper. Empire Gas & Fuel Co.'s No. 2 Brock, Stratton Ridge, is rigged up and ready to spud.

Calhoun County — B. F. Thompson's No. 1 Thomas, 10 miles west of Port Lavaca, is drilling gumbo at 2,388 feet.

Chambers County — Gulf Production Co.'s No. 1 Wilburn, Hankamer Dome, is drilling below 2,760 feet. Pure Oil Co.'s No. 2 Lost River, Lost Lake, is drilling cap rock at 3,699 feet. This company's No. 2 Lost Lake, same dome, is drilling sand and shale at 1,924 feet.

Fort Bend County—South Texas Petroleum Co.'s No. 1 Hartfield, Needville, is drilling sand at 4,738 feet.

Galveston County — Republic Production Co.'s No. 1 Lobit, Dickinson, has been shut down in shale and lime at 3,812 feet. Long and associates' No. 1 Irwine & Bishop, north of Dickinson, has been standing several weeks at 4,320 feet.

Harris County—Humble Oil & Refining Co.'s No. 1 Minnetex, Mykawa, is drilling hard shale at 4,996 feet. This company's No. 5 Warren, Hockley, is drilling packed sand and lime at 1,035 feet. Cedar Bayou Oil Co.'s No. 1 Johnson, east of Crosby, is shut down in sandy lime at 4,640 feet. Paxton and associates' No. 1 Brubacker, Clodine, is drilling gumbo at 980 feet. South Texas Petroleum Co. has made location for No. 1 Hicks at Almeda, south of Houston. This location is in the James Hamilton Survey No. 106 in the northeast corner of the tract. This will be the third test to be drilled at Almeda, a dome prospect south of the Pierce Junction Field.

Jackson County — The Texas Company's No. 1 Moore, north of the Edna gas field, is shut down in shale at 2,886 feet. Wright Brothers' No. 2 Classen, Edna, is drilling gumbo at 3,315 feet. These operators also have a location for No. 8 Drushel.

Jefferson County — Gulf Production Co.'s No. 2 Burrell, Fannette, is setting casing at 5,600 feet. The Texas Company's No. 1 Pipkin, Big Hill, is drilling hard sand at 2,940 feet.

Liberty County—Humble Oil & Refining Co.'s No. 3 Sterling, Moss Bluff, is drilling sandy shale and anhydrite at 2,956 feet. The Texas Company's No. 1 Davis, Davis Hill, has been abandoned as a junked hole at 4,638 feet. Union Exploration Co.'s No. 1 Esperson is in black shale at 5,676 feet and probably will be abandoned.

Matagorda County—Crossland and associates' No. 1 Murphy, Shepherds Mott, is drilling hard lime at 2,403 feet. Griffith and associates' No. 1 Culver, Citrus Grove, is repairing derrick preparatory to resuming drilling. It has been shut down with drill stem stuck at 3,212 feet.

Washington County—Sun Oil Co. has started drilling in its No. 1 F. Grote, Gay Hill, and is down 534 feet. No. 1 Marcus is at a total depth of 3,083 feet, and No. 1 Einman is down 2,599 feet.

South Louisiana

Cameron Parish — Shell Petroleum Corp.'s No. 5 Watkins, Black Bayou, has been abandoned at 1,325 feet. No. 6 Watkins is drilling blue shale at 1,758 feet. No. 7 is building derrick. The Texas Company is preparing to build

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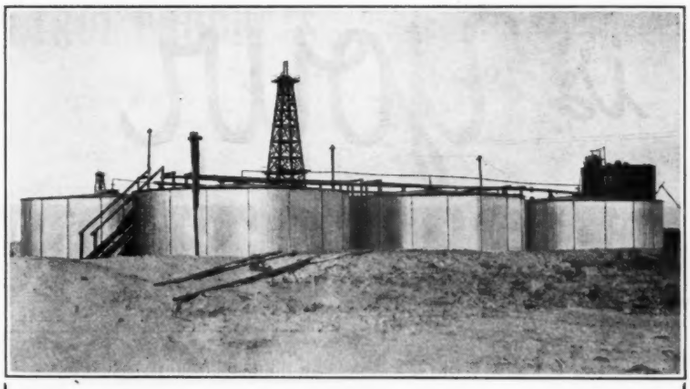

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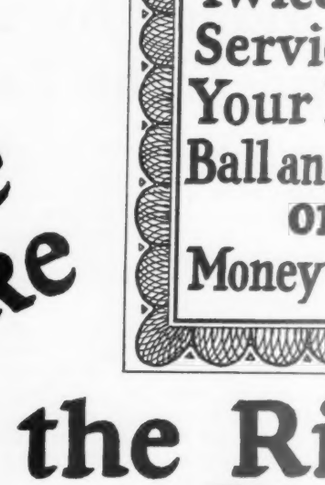

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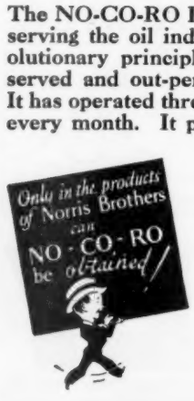

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derrick for No. 3-A Calcasieu Lake, Calcasieu Lake Dome.

Iberia Parish—Louisiana Land & Exploration Co.'s No. 3-A Vermillion Bay, is drilling below 3,231 feet. Gulf Refining Co. has started drilling in No. 8-Z State, Loreauville. Its No. 3 Kling is down 1,700 feet.

Iberville Parish—Shell Petroleum Corp.'s No. 3 Wilbert, White Castle, is drilling sand and gravel at 900 feet.

MICHIGAN FIELDS

(Continued from Page 56)

Lind estate, NE NE Section 15-11-16, Dalton Township.

Western Michigan Wildcats

The Muskegon Oil Corp. and others were drilling in No. 1 Essenberg and Dreyer, SE SW Section 13-5-16, Ottawa County, the first deep test after six structure tests. It was drilling at about 1,500 feet. Success or failure is expected within the next 50 feet.

Paul Schulte's No. 1 Blanchard, SW SW Section 30-10-10, Nelson Township, Kent County, has been straightened at 2,400 feet.

Four other wells still above the upper Traverse formation are: Sankey Oil & Gas Co.'s No. 1 Beem, NW SE Section 22-14-15, Newfield Township, Oceana County; Edward DuVall's No. 2 Carrie Mears, SW NW Section 31-15-18, Golden Township, Oceana County; Pennsylvania Oil & Gas Co.'s No. 1 Bert Snow, NW SE Section 23-15-15, Leavitt Township, Oceana County, and the Muskegon Oil Corp. and others' No. 1 William Kinstner, SE SW Section 17-13-17, Grant Township, Oceana County.

The Kenyon Oil Co.'s No. 1 Edward Gould, NW SW Section 24-9-10, Courtland Township, Kent County, also is drilling after having landed drive pipe at 348 feet.

Kelley Goldboss has moved a string of tools to a farm located NW SW NW Section 10, Wright Township, Ottawa County. This is near the village of Conklin and about 14 miles west of Grand Rapids.

The Mid-Continent Oil Co.'s No. 1 George Easley, NW NW Section 19-6-11, Kent County, is still shut down at about 1,000 feet.

CANADIAN FIELDS

(Continued from Page 56)

breaking of the diamond drill rods, and has resumed with heavier rods. The diamond drill outfit is being used to clean out the hole and bring back the original production; the drill is within 70 feet of the bottom of the original hole. Cleaning out will be continued until January 31, when the diamond drill outfit will be used to complete Spooner Oils' No. 2, Section 24-20-3w5. Spooner's No. 2 has cemented casing in the top of the deep lime, and will drill about 100 feet into that formation with the cable tools before changing to the diamond drill.

Calmont Oils, LSD 2, Section 1-20-3w5, is at 5,650 feet and shut down waiting for a special control head, before drilling deeper with the cable tools. Illinois-Alberta Oils' No. 2, LSD 14, Section 12-20-3w5, is drilling near the bottom of the Fernie shales at 3,517 feet, with a high gas pressure mudded off.

East Crest Oil Co., LSD 5-6, Section 16-19-2w5, has resumed drilling at 3,170 feet, after using a 100-quart shot to sidetrack a lost bit. After the shot the hole was cemented for 45 feet, and the cement drilled through.

Freehold Oil Corp., SW Section 3-21-3w5, has new derrick up and is installing machinery. The test will resume drilling at 2,540 feet. British Dominion Oil Development Corp.'s No. 2, LSD 6, Section 12-20-3w5, is running 10-inch casing to 3,310 feet, after getting the Dakota sand at 3,150 feet. There is a chance of light crude production in the McDougall-Segur sand in this formation.

Mayland Oil Co., LSD 10, Section 17-19-2w5, has resumed drilling after getting considerable light crude in the top of the Home sand around 4,763 feet. Oil is standing 1,700 feet in the hole after considerable bailing, but the test will be carried deeper.

It is reported that Alberta Pacific Consolidated, Ltd., of Calgary will start a test on its acreage in the SW Section 20-19-2w5, near the Home Oil Co.'s wells in the south end of the Turner Valley.

Freeman-Lundy Syndicate's No. 1, LSD 10, Section 1-20-3w5, near the Okalta's and McLeod's producers, has spudded.

McDougall-Segur

Shareholders of the McDougall-Segur Exploration Co. and the New McDougall-Segur Oil Co. held their annual meetings at Calgary recently, when reports covering the past year's operations of both companies were presented. The directors of New McDougall-Segur Oil Co. reported No. 1 making a daily production of 10 to 12 bbls. of light crude. No. 2 is being carried to the deep lime, and No. 3, which was started as a test of the McDougall-Segur sand, is at about 3,200 feet and in shape to be continued to the deep lime. The company holds 140 acres in the Turner Valley Field. No. 2, now being deepened, is close to Royalite's No. 8, which had a flush production around 250 bbls. in the deep lime; New McDougall-Segur's No. 2 got a 2,000,000-foot flow of wet gas in the Home sands at 4,130 feet and by cementing casing at 4,163 feet the gas was allowed to flow between the 8-inch and 10-inch and used to feed the boilers. The report further recorded that an action challenging the company's title to some of its leases, brought by Frank Starleigh, had been terminated by the Privy Council refusing Starleigh leave to appeal, thus confirming the company's title.

The report of the McDougall-Segur Exploration Co. showed the company owned 1,800 acres of leases and 50 per cent of the capital stock of the New McDougall-Segur Oil Co. British Dominion Oil Development Corp. is drilling on a 5-acre lease in SW Section 12-20-3w5; the British Dominion contract calls for a test to be drilled to 5,000 feet, or 330 feet into the deep lime, whichever may be shallower, unless commercial production is encountered at lesser depth. If commercial production is encountered, a second test must be started and drilled to production, or the limestone. Completion of this agreement entitles the British Dominion company to further options which would give it 20 acres on the NE cor. of the McDougall-Segur acreage. The British Dominion company is to pay a royalty on a sliding scale, based on production. The same directorate was re-elected for both the New McDougall-Segur Oil Co. and the McDougall-Segur Exploration Co., as follows: President, F. M. Graham; directors, R. J. Hutchings, J. McKinley Cameron, William Pullar, D. J. Young, L. S. MacKid, J. I. McFarland, T. M. Carlyle; secretary, A. M. Pinkham.

On the Sarcee Reserve 20 miles west of Calgary the Sarcee Oil & Development Co. is putting down a series of core drill tests. The information will be used in locating deep tests next spring.

On the Rickert structure, the Turner-Wright Co. is reported to have spudded in LSD 5, Section 24-19-6w5. Drilling started in the Kootenay formation and possible production is looked for at 1,800 feet. Julius Rickert, who made the location, will supervise drilling operations through the winter.

In the Skiff Field, southern Alberta, Imperial-Devenish's No. 3 is reported drilling at 900 feet after cementing casing at 823 feet. The cementing job was inspected by C. W. Dingman, Federal petroleum engineer, and J. H. McLeod, western production manager of Imperial Oil, Ltd., before drilling was resumed, and it is expected drilling will go right ahead to the producing horizon, which in No. 1 was met at 3,090 feet. The test is using a rotary drill with three shifts, O. G. Devenish having personal charge of the operations. No. 3 is an offset to Devenish Petroleums' No. 1 discovery well, and is expected to get production of heavy crude at practically the same horizon. It was started after No. 2, drilled a mile distant from No. 1, had finished dry. If No. 3 is productive, further drilling will be undertaken by Imperial Oil, Ltd., in the Skiff Field. The test will be carried to the Ellis sands, the producing horizon, with rotary tools,

and cable tools used to drill in the well.

Cypress Hills

In the Cypress Hills district, Eagle Butte Oil Co.'s No. 1, LSD 3, Section 31-7-4w4, is still blowing wide open, with a gas flow estimated at 40,000,000 feet a day. Efforts to attach control head to the casing have been balked by the fact that the casing head is heavily covered with ice. A steam boiler has been moved to the well and live steam will be turned on to thaw the ice, after which the flow will be shut in and measured.

In the Milk River district, Capitol Oil & Gas Co.'s No. 1, LSD 4, Section 4-2-12w4, is shut down for the winter at 660 feet. Commonwealth Petroleum is core drilling on the Blood Reserve, having finished its third shallow test and located a fourth. In the same area, Alberta Pacific Consolidated is working on its seventh structure test. These wells range from 50 to 450 feet.

On the Beaver Dome, Madison Oils, LSD 10, Section 24-2-11w4, is reported cementing casing after striking a gas flow, estimated at 3,000,000 feet a day. The gas was struck in a coal seam around 731 feet. West of Coutts, Ko-Top Oils is reported rigging up in SE Section 2-1-17w4, and will spud in toward the end of January.

On the Montana side, the Michener-Mattoon No. 1 test, backed by interests associated with Commonwealth Petroleums, Ltd., of Calgary is reported to have got shows of oil and gas at 1,673 feet, and is cementing off water before drilling deeper. The first shows were met in the Emrick sand at 1,608 feet and this sand will likely be shot if deeper drilling does not develop commercial production. The location is in the North Montana Field.

In the Wainwright Field, east central Alberta, Wainwell Oils' No. 1, LSD 9, Section 36-44-7w4, is now in full production and is reported making 500 bbls. a day, which is considerably in excess of the estimated production of 360 bbls. The oil is pumped direct to the Wainwell Oils' refinery, which is operating full time. Wainwell Oils' No. 2, LSD 15, same section, has been turned over to Blair & Stevens to be completed with a rotary outfit; this test is expected to be brought into production by February. At last reports it was down about 700 feet. Wainwells' No. 3, LSD 9, Section 36-33-7w4, is installing pumping equipment and looks like a good commercial producer.

KANSAS FIELDS

(Continued from Page 44)

is located C NE Section 5-12-17w in Ellis County and it was drilled 10 feet deeper to a total depth of 3,585 feet. According to the owners' report, the well swabbed 14 bbls. an hour from the lower depth, and it will be drilled deeper next week.

Butler County

Patten and others made location for No. 1 Marshall, NW cor. SE SW, Section 11-27-5. Empire Oil & Refining Co. is building the rig for No. 2 Linnerson, SW cor. NE SW, Section 34-27-5. The rig is being built for No. 2 Hutchinson "C," NE cor. NW, Section 34-27-5. Davis & Hazlett's rig is up for No. 10 Lewis, SW cor. NE SW, Section 3-27-6. Allison & Fitzwilliams built the rig for No. 4 McGinnis, SE cor. NE NE, Section 9-27-6. Dixie Oil Co. made location for No. 6 Marshall, SW cor. NW NW, Section 10-27-6.

Coffey County

Clark Braden and others' No. 1 Douglass, NW cor. SE NE, Section 11-22-15, is drilling at 1,340 feet.

Cowley County

Trees Oil Co.'s No. 1 Kinninmath, C NW SW, Section 12-32-6, has completed for 2,500,000 feet of gas in sand at 2,428-75 feet. Kentucky Nitrogen & Oxygen Co.'s No. 1 Melick, CNL SE SW, Section 13-34-6, is dry and abandoned at 1,450 feet.

Elk County

Mann and others' No. 2 Shrader, SW cor. NW SE, Section 12-31-8, is rigging up.

Greenwood County

Syndicate Oil Co. & Phillips Petroleum Co.'s No. 2 Edwards, SW cor. NW NE, Section 35-23-11 is rigging up. Simmons & Rhodes' No. 2 Luthi, NW cor. SW SW, Section 29-22-13, has been completed for 75 bbls. in sand at 1,691-1,710 feet. C. B. Christy's No. 1 Peterson, SE cor. NW SE, Section 24-24-9, is dry and abandoned at 2,337 feet.

Marion County

Fred Franks made location for No. 1 Propp, C SW SE, Section 8-19-4.

Morris County

Hiatt and others' No. 1 Smith, NW cor. SE, Section 35-15-5, is a rig under construction.

Woodson County

Churchill & Sasson's No. 1 Southwick, NW cor. SE, Section 31-23-16, is underreaming at 1,681 feet.

PERSONNEL DEPARTMENT IS ORGANIZED BY HUMBLE

HOUSTON, Tex., Jan. 5.—Selected as head of the newly organized personnel department of the Humble Oil & Refining Co. and Humble Pipe Line Co., H. E. Bell holds the distinction of being the

H. E. Bell

first to hold such a position among Texas oil companies and one of the few in the country.

Establishment of a personnel department recently was a forward step on the part of the Humble companies designed to provide a contact man between the employes and the company officials.

Mr. Bell will be the representative of the employes and through him all complaints, suggestions on the part of the employes, applications for transfers, promotions and the like, will be handled.

Mr. Bell's home has been at Abilene, Tex. He has been a lawyer, oil man and is a former conservation agent of the State Railroad Commission.

CREIGHTON BATES RETIRES

Creighton Bates, for 34 years active in the service of the Prairie Oil & Gas Co. and correlated companies, has retired and will spend his future with a brother in Florida. A farewell dinner was given to Mr. Bates at Independence, Kans., and was attended by executives and friends of Mr. Bates. W. S. Fitzpatrick, chairman of the board of the Prairie company, acted as toastmaster at the dinner.

ELK HILLS RESERVE

WASHINGTON, D. C., Jan. 5.—The Supreme Court has returned to the Government from the Standard Oil Co. of California valuable oil lands in the Elk Hills naval oil reserve in California.

The court set aside one more act of Albert B. Fall as Secretary of the Interior. It had been contended that Fall did not determine whether the land was known to be mineral land in 1923, when the matter was brought to his attention.

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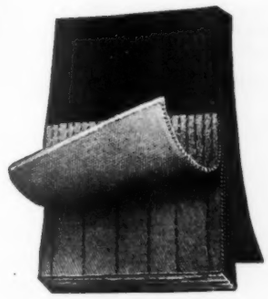

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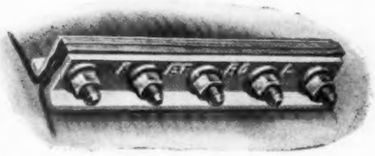

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"The 1928 Annual Review Number" which will be published THIS MONTH is one definite proof of The Oil and Gas Journal's desire to provide you with facts that you can use to make 1929 a real prosperous year.

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USED LINE PIPE AND CASING FOR SALE
450′ 15½″ 70-lb. used casing.
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2,200′ 10 ″ 40-lb. used casing.
2,100′ 8¼″ 32-lb. used casing.
3,900′ 6⅝″ 24-lb. used casing.
Located in Oklahoma.
Above pipe was purchased new and used in one well.
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A FEW BARGAINS
35,000-bbl. Oil Storage Tank, First Class Condition, $2,750.
55,000-bbl. Oil Storage Tank. New—Immediate Shipment—Sacrifice.
7—500-gal. Unused Compartment Truck Tanks only $125.00 each.
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Many other items you can use. Ask for bulletins.
ZELNICKER IN ST. LOUIS
Specializing in Oil Engines and Other Power Equipment, Rails, Locomotives and Cars, Steel Sheet Piling, Etc. for 30 years.

200 H. P. Bessemer Gas Engine No. 26,536.
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With or without leather belting and AC General Electric Generators. Engines and generators up to date in every way and in perfect condition, having been used only short time. Also 2—165 H. P. Bessemer Gas Engines.
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We have in stock for immediate shipment:
20 MILES 3-inch and 3½-inch ODEE PIPE.
60 MILES 4-inch ODEE PIPE.
8 MILES 6-inch ODEE PIPE.
12 MILES 6⅝-inch ODEE PIPE.
Pipe is plain ended in 30 and 35-foot lengths.
Other sizes in line pipe and casing from 2-inch to 15½-inch.
PRODUCERS PIPE & SUPPLY CO.
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FOR SALE—Native walking beams, oak pitmans, bolsters and dividers for drilling machines made to order. Send pencil or pen sketch with dimensions to Safety Pulling Machines, Independence, Kans.

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Excellent condition. Used less than two years. $600.
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Ingersoll Rand type XCB, capacity 1,525 feet, size 22×14×16″, complete with AC synchronous motor. Sullivan Angle Compound type WJ-3, capacity 1,000 feet, size 20×12×14″, complete with 200 HP AC motor.
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FOR SALE very cheap, a diamond core drill that is in first class condition. Box C-740, The Oil and Gas Journal, Tulsa, Okla.

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5—150 H.P. Boilers, H.R.T. 150-lb.
2—38-inch all copper Distilling Columns.
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1—Baldwin 60-ton, and 1—Porter 45-ton standard gauge Steam Locomotives.
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Send for complete booklet listing pumps, Motors, Stills, Tools, Air Compressors, Building Material.
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FOR SALE: 15 miles 8-inch standard 29-pound wrought iron line pipe with recessed couplings, in No. 1 condition. Was used for high pressure oil line before being taken up recently. Located in Indiana. MAX ZEIGLER AND BROS., Muncie, Ind.

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Humble refinery—Standard Oil product cracking plant. Wilson Refining—tank, stills, pumps, agitators, boilers. Pipe and connections.
Will buy salvage plants or pipe lines.
W. BOGART
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CAPITAL SEEKERS
Will endeavor placing proposition of merit on underwriting basis. Box 44, Room 407, 26 Court Street, Brooklyn, N. Y.

COMPANIES organized and financed. Address full details to, Box C-697, The Oil and Gas Journal, Tulsa, Okla.

FINANCE YOUR OWN project with shares bonded. Quickest, most satisfactory known method of raising capital. Information free. Bankers Interstate Security, Electric Bldg., Denver, Colo.

DO YOU NEED MONEY for organizing or financing oil or mining deals? Write 136 E. 13th, Oklahoma City, Okla.

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NEW MAP OF MID-CONTINENT OIL FIELDS, suitable for pocket or desk top, shows counties and producing areas in Oklahoma, Kansas, Texas, Arkansas, Louisiana and Eastern New Mexico. Postpaid for $1. Kelley Map Co., P. O. Box 1773, Tulsa, Okla.

INCORPORATIONS

DELAWARE incorporator. Charters, fees small, forms. Charles G. Guyer, 901 Market St., Wilmington, Del.

CHARTERS—Delaware best, quickest, cheapest, most liberal. Free forms. Colonial Charter Co., Wilmington, Del.

THE LUGAR CORPORATION
Financial and Industrial Engineers
Audits—Appraisals—Reorganizations
Mergers
527 Fifth Avenue
New York City.

WANTED

WANTED—Reliable Refinery to contract our 1929 supply of gasoline. Two million gallons of U. S. Motor, two hundred thousand gallons High-test, three hundred thousand gallons Anti-knock. Write, wire or phone, Hogarth 6010, Allegheny Oil Company, c/o Michigan Terminal Warehouse, Wyoming and Brandt Avenues, Detroit, Michigan.

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CAPITAL SEEKERS—Put your project before 260 livewire brokers—cost trifling. Details free. Amster Leonard, East Orange, N. J.

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Compute white space at the above rates.
Mail your advertisement to
THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

MECHANICAL INVENTOR
Will undertake to develop original ideas or suggestions of present necessities, for a fee. Or will pay agreeable price for same, if found to be worthy. I make a specialty on improvements relating to oil well and mining machinery and devices.
Write me fully and freely by registered mail, you can be sure of fair treatment.
I will sell controlling interest with management in small manufacturing business, with bright prospects, to right parties, small overhead and cheap labor. Terms if desired.
ORSON W. DUNHAM
Webb City, Mo.

FOR SALE ½ interest, new patented ball and seat traveling valve, cups can be changed in any depth well in a few minutes without pulling sucker rods. Box C-710, The Oil and Gas Journal, Tulsa, Okla.

ONE OF FT. WORTH'S new apartment houses, 16 beautifully furnished apartments, income about $1,000.00 per month. Price $110,000; ⅓ cash or will take Heavy cable or Rotary tools, as part cash. Box C-734, The Oil and Gas Journal, Tulsa, Okla.

FREE BLOCK well located leases; for the drilling of one well 750 feet; close to pipe lines; three sands. H. W. Mitchell, Parker, Kansas.

Reliable parites who will furnish very highest banking house reference, own two absolutely proven locations for big natural gas wells, located right on a pipe line, which furnishes gas to over sixty cities and towns.
We offer part interest in one or both these wells, for funds to help drill same. We only require $15000.00 for each well and locations are only about 300 feet from forty million foot gas well. We guarantee good commercial production of oil or gas before you pay any money. Address Box 572, Chickasha, Okla.

BUSINESS FOR SALE
On account of other interests that require much of my time I will sell one of the best established mapping concerns in Texas at just about one fourth its actual worth—Oil CITY MAP COMPANY, located at 209 W. T. Waggoner Bldg., Fort Worth, Texas. This concern was established in 1919, and has grown from a few drawings to now, there are more than 1,000 publications, and with patrons from coast to coast; $1500.00 will handle the proposition. Write, wire or phone.
W. H. WHALEY, Owner
Phone 2-4639 Fort Worth, Texas.

HELP WANTED

GENERAL MANAGER
WANTED to assume entire charge of company's field operations, man thoroughly experienced in Appalachian fields. Must have had responsible charge of drilling, production and operation.
Company is increasing its production from its present fee-owned proven properties.
Compensation will be very attractive for the right man.
Replies will be confidential. They must state age, experience in detail, education and training, and must give responsible references. Technical education useful but not indispensable. Box C-732, The Oil and Gas Journal, Tulsa, Okla.

WANTED—Mechanical Draftsman for Oil Refinery; must be experienced. State Salary expected, give references, age and whether married or single. Apply, New Orleans Refining Co., Sellers, La.

WANTED
Specialty salesman to sell belting and belt specialties, one having acquaintance in the fields preferred. Box C-742, The Oil and Gas Journal, Tulsa, Okla.

POSITIONS WANTED

REFINERY SUPT. desires connection with reliable company. Fifteen years' experience; thoroughly familiar with modern methods, including lubs; capable of getting best results. Address Box C-721, The Oil and Gas Journal, Tulsa, Okla.

PRODUCTION SUPERINTENDENT of ten years experience, who is GEOLOGIST and PETROLEUM ENGINEER, desires connection with substantial interest or a major company either in domestic or foreign work. Acquainted with gas lift and repressure work and valuation appraisals, high pressure natural gas production a specialty. Address Box C-736, The Oil and Gas Journal, Tulsa, Okla.

PRACTICAL boiler—tank—shop supt. technically trained; good draftsman inspector, familiar with Oil Refining Equipment. Open for engagement. Box C-719, The Oil and Gas Journal, Tulsa, Okla.

LABORATORY Tester, capable of handling all testing at small plant. Will go any place. Available now. A-1 references. Box C-733, The Oil and Gas Journal, Tulsa, Okla.

POSITION WANTED—By competent title man with 10 years experience. Married; 32 years of age; A-1 references. Wm. Self, Wagoner, Okla.

PRODUCTION MAN, twenty years practical experience in the oil fields, know both Rotary and cable tool drilling, six years in production dept. If you are looking for a hustler who can go to the field and handle both drilling and production, give me a trial. Can furnish best of references. Box C-741, The Oil and Gas Journal, Tulsa, Okla.

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Before disclosing your invention to anyone, send for blank form.
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Bulletin "How to Establish Your Rights" and complete information free.
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FOR SALE—12,000 acres, good agricultural land, located in the heart of West Texas. This is one of the finest tracts of land in West Texas for colonization purposes. Price, $20.00 per acre. M. A. Crum, Friona, Texas.

35 CENTS a line first insertion; 25c a line each additional insertion. Cash in advance.

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GEOLOGISTS

OIL LOCATED before drilling. Geophysical method. Magvibrometer Instrument; take pay in oil. No oil, no pay. Except traveling and testing expenses. 95 per cent accuracy. O. P. Coffin, Caddo, Texas.

LOCATING AND DEFINING OIL AND GAS structure which will produce. WANTED, capital interested in wildcat territory. Will lease and locate. D. H. Reavis, Columbia, Tenn.

GEOPHYSICAL SURVEYS made with Vertical Intensity Magnetometer. Also combined geological and geophysical reports, if desired. MID-CONTINENT EXPLORATION COMPANY, INC., 727 Giddens-Lane Bldg., Shreveport, La.

GEOPHYSICAL

Magnetometer surveys made, contour map prepared. Expenses and acreage. GEOPHYSICAL EXPLORATION CO., Petroleum Bldg., Oklahoma City, Okla.

ROYALTIES—PRODUCTION

80 ACRES ROYALTY $5 to $20 in one to four interesting West Texas locations. Resale service, drilling bulletins, new locations reports. NATIONAL ROYALTIES, Box 1214-B, Wichita Falls, Texas.

WILL exchange royalties to increase my spread. Joe P. Crawford, Petroleum Bldg., Oklahoma City, Oklahoma.

PERPETUAL DEEDED ROYALTIES Wingler, Loving, Ward, Lea, Pecos Counties. J. R. Haynes, Grantville, Kans.

20 CENTS to $1 per acre. Deeded royalty oil lands. Send for circular. Alfred Day, New Tyler Hotel, Fort Worth, Tex.

PRODUCING and CLOSE-IN royalties, some fine buys available, small and large, in older fields and West Texas. Write for list "P." National P. & R. Co., Wichita Falls, Tex.

PERPETUAL DEEDED ROYALTY, a one-half interest in 3,000 acres 17 miles due south of Coldwater, Kans.; land joins Okla. in direct northeast and southwest line to Amarillo trend. Make offer. Can get others. W. R. Johnston, Coldwater, Kans.

40 ACRES ROYALTY under 80 acres, close to Oklahoma City Gusher. Slick, deep test drilling close. N ½ NW Sec. 32 Twp. 10N R. 1W. You can buy from one to forty acres for $100.00 per acre. 819 Petroleum Bldg., Oklahoma City, Okla.

FOR SALE oil royalty in Logan County, Okla. Write, G. H. Reid, Lebo, Kansas.

WILL SELL one half royalties in 1,280 acres in Webb County, Texas. Gas field—Some gas wells now on land. Price $25.00 per acre. Address Room 515, Crawford Hotel, Big Spring, Texas.

LEASES—PRODUCTION

I HAVE a lease on a 200 and a 160-acre tract in the Southern Kansas field which I will sell or will contract on shares. There are four producing wells on the tract at the present time. Sure locations for fifteen to twenty-five more wells. A nice gas field undeveloped. The two tracts adjoin. Address W. H. Bird, Elks Club, Junction City, Kansas.

CHOICE
OKLAHOMA COUNTY
LEASES AND ROYALTIES
owned by
James M. Johnson,
1109 N. Broadway, Oklahoma City, Okla.

WINKLER—PECOS COUNTIES
Leases and Royalties.
W. S. PATTERSON
Pecos, Texas.

FOR SALE—Choice 80 acre oil and gas lease W½, NW¼, Sec. 32-T17-R32, Lea County, New Mexico. P. O. Box 368, Chanute, Kansas.

OIL AND GAS LEASE: What will you give for a drilling contract on 160 acres in Wheeler Co., Texas, Section 50, block 17? Box 622, Hedley, Tex.

LEASES—PRODUCTION

FOR SALE—Leases, Oil Production, Asphalt, Limestone and Other Mineral Lands. W. P. Harley, Bowling Green, Ky.

FOR SALE undivided one-half interest in 20 acres in heart of Muskegon Oil field surrounded by production with drilling program started, also other Muskegon acreage and production contracts. Box C-714, The Oil and Gas Journal, Tulsa, Okla.

FOR SALE—A 1,000-acre lease with 3 good producing oil wells near the center of the acreage, and 1 good gas well on the Northwest; 1 Star Drilling Machine and tools complete. Also one-half interest in a 100-acre lease with 5 wells, well equipped. Unlimited opportunities for development and more wells. This must be sold within 30 or 40 days. Excellent reasons for selling. Will stand fullest investigation. Address John Dillon, Rocky Branch, Kentucky.

ATTENTION, brokers and investors; Write for our list of oil leases and oil royalties in Pontotoc, Seminole and adjoining counties. Bowles and Smith, First National Bank Bldg., Ada, Okla. Phone I.D35.

Approximately 9,000 acres on known structure in Northeastern Arkansas for test well. Can be had solid for small bonus or will checkerboard in equitable manner. Some drilling done near. Territory warrants rigid investigation. Detailed information on request. Box C-730, The Oil and Gas Journal, Tulsa, Okla.

BREWSTER COUNTY, TEXAS
Land in fee. Warranty deed.
Will sacrifice 640 acres of land in Fee or any part thereof, for $2.50 per acre. Write Box 1601, Fort Worth, Tex.

WE HAVE FOR SALE leases and royalties on core drilled structures in Sedgwick and Harvey Counties, Kansas.
GRESHAM & COMPANY
207 Bitting Building, Wichita, Kansas.

46,000 ACRES 10 year paid up lease for $2.50 per acre. Star County, Texas. 819 Petroleum Bldg., Oklahoma City, Okla.

Have lease off-setting shallow gas well. Will give half interest for well. Good market. Box 412, Muskogee, Okla.

LEASES—PRODUCTION

LEA COUNTY, NEW MEXICO
Perpetual Royalties.
W. S. Patterson
Pecos, Texas.

NEW MEXICO oil leases; Lea, Eddy, Chaves, Union, Quay and all other active counties; complete list and map on request. Orcutt-Harris & Co., Colcord Bldg., Oklahoma City, Okla.

160 ACRES prospective oil land, located between Semitropic and Kettleman Hills. Price $30 per acre, easy terms. Lon V. Smith, 155 So. Manhattan Pl., Los Angeles, Calif.

$3 to $5 per acre for West Texas land with Oil and Mineral right 40 acres up. New Mexico oil leases. Winter garden lots and truck farms on easy terms; agents wanted. A. Poe, 829 Wilson Bldg., Dallas, Texas.

OWN SEVERAL close-in leases on Signal Hill, also 4 wells producing in shallow zone, ready for deepening. Will give substantial interest for capital to develop. For particulars, address W. E. Hornaday, Alexander Hotel, Long Beach, Calif.

WILL BUY New Mexico oil leases. Have for sale perpetual mineral deeds, under Major Oil Company leases, Lea County. Write MONARCH INVESTMENT COMPANY, Roswell, New Mexico.

MUSKEGON, MICHIGAN
OIL LEASES—31 acres also 12 acres near production, price reasonable; 4,000 Acres S. E. of field on structure, $1.00 per acre—6 months to drill. Full information gladly furnished and free about Michigan field. Wm. J. Wilson, 922 Majestic Bldg., Detroit, Mich.

FOR SALE or drilling contract, 6,000 acres, 25 cents rental in two years. 100-barrel well southeast of leases 10 miles. 3,000-barrel well north of leases. Well drilling ⅛-mile of leases. H. E. Kinear, Marion, Ind.

SOUTHEAST NEW MEXICO
Leases, royalties and drilling blocks in Lea, Eddy, Chaves, Roosevelt, Curry, DeBaca and Guadalupe counties. Prompt, accurate service. F. S. Blackmar, Inc., Roswell, New Mexico.

LEASES—PRODUCTION

UNITED STATES GEOLOGICAL SURVEY STRUCTURE!
LEONARD CELESTE MONOCLINE RECOMMENDED BY DR. ROBT. T. HILL, GENE R. SMITH, LOYD WILLIAM STEPHENSON AND MANY OTHER NOTED GEOLOGISTS! WELL BEING STARTED IMMEDIATELY IN NEW HIGH GRAVITY OIL DISTRICT OF TEXAS.

The best geological advice in the United States is being followed on the new test of the IMPERATOR OIL CORPORATION on the Leonard-Celeste Monocline—which we believe to be the last untested major structure mapped by the Geological Survey in Northeast Texas.

A 3,000-foot test has been contracted for with one of the best known firms of drilling contractors in Texas. A well drilled in 1921 with rotary tools near our location had 25 feet of saturated sand carrying plenty of oil and gas. A big oil or gas well, possibly both, seems certain. No casing was ever set in the old well, so a test could not be made. This well is not a so-called mystery well—or one that had the "Farmers Sand."

Excellent geology forms the background together with irrefutable evidence of favorable sand conditions. Nine months' work and many thousands of dollars have just been spent getting these leases in shape. All leases have been taken under the supervision of a well known firm of attorneys of Dallas, Texas.

For leases around well at reasonable prices or interest in drilling block, write or wire the Imperator Oil Corporation, 3rd floor Petroleum Bldg., Fort Worth, Texas.

NO STOCK FOR SALE.

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	1 Time	2 Times	3 Times	1 Mo.
3 lines	1.05	1.80	2.25	3.30
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5 lines	1.75	3.00	4.25	5.50
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7 lines	2.45	4.20	5.95	7.70
8 lines	2.80	4.80	6.80	8.80
9 lines	3.15	5.40	7.65	9.90
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THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

INVESTORS make money buying leases and royalties, Fisher County oil field. Several good buys. N. E. Porter, Royston, Texas.

FOR SALE—5 acres in Torrance Redondo Oil Field, $1,800.00 per A., Fred Hansen, 2063 Carson St., Torrance, Calif.

BROKERS—If you want some real buys in well-located TEXAS oil leases, write LEASE SCOUT, P. O. Box 200, San Antonio, Texas.

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CONSUMERS LEDGERS
We are prepared to furnish from stock standard forms of gas meter Consumers Ledgers. Sample forms and quotations on request. First-class material and workmanship.
DERRICK PUBLISHING CO.
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OIL FIELD LEGAL BLANKS
Leases, assignments, releases, township books, well records, etc. Request on your letter head gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla.

Results!

658 Moreland Avenue, N.E.
Atlanta, Ga., December 5, 1928.

The Oil and Gas Journal,
Tulsa, Okla.
Gentlemen:

I inserted a classified advertisement in The Oil and Gas Journal in a recent issue and am happy to say that I was successful in finding a reliable operator from Texas who will drill a well for me in Montgomery County beginning in January.

I have tried practically all the oil publications, but have always secured better results from The Oil and Gas Journal classified columns than all the rest of the oil papers put together.

Assuring you of my extreme appreciation for the satisfactory results obtained through your splendid publication, I am

Very truly yours,

W. C. BROOKS.

Furnace Oils in Demand in Chicago

Small Stocks in Hands of Dealers Expected to Stimulate Buying. Gasoline Business Better Than Anticipated

By J. B. Waldo

CHICAGO, Jan. 7.—The demand for furnace oils was active today following the cold snap which came Sunday and is continuing today with predictions of still colder weather for Tuesday. It is expected there will be an even larger demand for these a little later as the dealers find their stocks decreasing rapidly. The spot gasoline business was unevenly distributed and was as a whole a little better than the trade expected as severe cold, following snow and rain is not good gasoline weather. Dealers in various parts of the territory report little motoring and roads filled with snow and ice. The cold snap held the prices of the higher tests and for the U. S. Motor grade there were practically no changes in Monday's prices from the close of last week. Major refiners were quoting 8 cents as their spot price and other sellers 7½ to 7¾ cents. Some lower prices were named for West Texas gasoline, 7¼ cents being quoted for 56 navy and 7⅜ cents for 58 navy by some sellers direct to good buyers.

There was very little doing in kerosene. Straightrun or U.G.I. gas oil was ordered quite freely by some gas companies and as the offerings are light at the present prices were strong, the usual quotations being 2⅝ to 2¾ cents. Zero gas oil distillates and the lighter fuel oils suitable for domestic oil burners were in good demand Monday with a strong price situation at present. Some dealers point out that usually a cold snap during the first part of January is followed by a thaw during which cars accumulate on the distributors' sidings and often are offered for sale at less than the market to avoid demurrage charges. This record of past seasons makes them cautious in buying except for immediate needs. At the present time consumption is large for all kinds and grades of furnace oils and the demand on refiners from distributors is increasing.

Heavy fuels are just a little stronger, more in the low sulphur oils than for the heavy West Texas fuels which continue in ample supply and are selling at the same prices or at best at a slight advance.

Gasoline 6⅞ to 7½ Cents

Gasoline was offered to large distributors and to marketers last week at prices ranging from 6⅞ to 7½ cents. In the case of the tank car marketer the price was for resale. The highest priced gasoline was that offered by Group 3 refiners at 7½ cents. Gasoline from Texas which was sweet and would pass the full U. S. Motor specifications was offered at 7¼ cents and gasoline which while a powerful motor fuel was not always sweet and would not pass the full U. S. Motor specifications was to be bought in fair quantities at 6⅞ to 7⅛ cents.

The gasoline market last week favored buyers. For some reason not clearly understood the major refiners decided to reduce their spot price from 8½ cents to 8 cents. Some assert that one or two of the majors had already begun to sel at that price before the general announcement was made and that it was this fact that brought about the decision. Others simply state that there was some accumulation of gasoline and that they needed the business. As they could make no sales at the 8½-cent price they decided to try a lower one.

There is no doubt that the spot business is becoming more important as the number of distributors who refuse to sign new contracts increases. There are several large distributors in this territory and even in the city who have not signed contracts for the coming year and say that they will take their chances in the spot market at least for a while. There are many contract customers who are buying what they need in excess of their contracts in the spot market and not from their contract refinery.

The representative of an outside refinery stated last week that he was regularly selling to customers of a major refinery what gasoline they required in excess of their contracts and that he was selling them more gasoline than they were taking on their contracts. It is not likely that he is the only one who is doing this.

Lower Prices Influence Market

The market was largely under the influence of these lower prices and if the major companies secured much more business than they did at the former price, the increase was confined to a few companies and was not important with them. The major companies are shipping to their contract customers and the bulk of the spot business is being done by the outside sellers.

The usual quotation for U. S. Motor gasoline during the last week was 7½ to 7¾ cents. Larger distributors bought at the 7½-cent price direct, and in some cases at a little less. They had every oportunity, for right after New Years there was a rush to sell. Several possible buyers stated that never in their experience had they had so many wires and long distance calls from refiners as they did on last Wednesday.

One refiner sent some of his customers wires offering to book their orders for their January requirements and to let the buyer name his price. One buyer was asked if he had taken advantage of this offer and said that he did not think it was a square deal to himself or the refiner. In explanation he stated that he had offers of 7⅜ cents at that time and expected to buy some gasoline during January at 7¼ cents or less and he knew that the refiner would consider him as taking advantage of his offer if he named the price in an order at which he hoped to be able to fill his needs for the month.

Of course much of the weakness developed was due to the growth of the quantity and quality of the gasoline offered from Texas refineries. The trade here sees nothing to decrease the supply of Texas gasoline and believes that it can be depended upon by jobbers to keep gasoline prices at a lower level than prevailed during the active season of last year. Some of the distributors are really warm in their praise of the West Texas product. It might seem that the refiners in the Group had underestimated the supply of good gasoline that could be secured from the plants in the West Texas and related fields. In some cases these refiners have personally stated it as their opinion that little gasoline from West Texas was coming into this territory. No exact figures have been available. Owing to the campaign against the product some dealers have been unwilling to admit that they did buy the gasoline in question, yet large amounts have been sold here from West Texas plants. Of course the crude varies as do the refined products but there has been a lot of gasoline refined from West Texas crude sold in the Standard of Indiana territory and dealers believe that they can rely on a larger supply of even better quality, in the future.

Antiknock Selling Well

The prices for the higher gravities followed the price for U. S. Motor gasoline, most of the refiners making a corresponding reduction. The demand for these higher tests has been a little better, with the colder weather but there has not been an active market for them. Antiknock gasoline is selling well and taking the place of much of the higher tests. Natural gasoline has been quiet and prices are easy. The situation in Ohio and other eastern parts of the territory shows no improvement. With a lighter demand, the Group and Middle West refiners are again competing more actively for this business but are up against stiff competition from the Ohio, Kentucky and eastern and southern plants. In the southern parts of Ohio, dealers stated that they could buy at under 10½ cents delivered against the price of 11½ cents delivered quoted by the Standard Oil Co. of Ohio, which would equal a price from the Group of less than 7 cents. A quotation of 7 cents Group 3 was turned down by a Cleveland buyer who claimed that he had a price of 6.90 cents. In all the larger cities of Ohio and in Detroit some low prices are being named by refiners with advantageous freight rates. One of the first observable signs of a tighter market for gasoline early last summer was the business placed by Ohio and western Pennsylvania concerns who had not bought from Group 3 for a long time. Now they are securing their supplies from the nearer sources and this must indicate larger supplies.

Kerosene has weakened a little here largely due to some accumulations. The demand is light, just scattering cars. One of the larger refiners reduced the price of 41-43 water white kerosene to 5½ cents last week and at this writing this is really the top of the spot market.

Cold Snap Helps Business

The day following New Years was really cold, temperatures at and below zero being noted. The larger distributors were swamped with business. The telephones were ringing constantly and anxious home owners were asking for the immediate delivery of a fill of their particular kind of furnace oil. Most of the callers were women and they ordered a tank wagon around to fill their tanks as if they were ordering the butcher to send around a couple of chops for lunch.

There was a brisk demand from distributors for distillates and all grades of gas and fuel oils that are suitable for domestic burner use. Prices were advanced by several sellers, in most cases the concern making the advance marking the price up to the top figure of the range from a lower figure. One refiner advanced the price for zero dark gas oil from 2¾ to 2⅞ cents which was the price previously asked by other refiners. In a general way the market for gas oils and distillates is an eighth of a cent higher than a week ago and for the high gravity fuel oils suitable for the larger domestic oil burners 2½ cents, although not all have changed their price especially those whose prices have been rather at the top of the market.

There are stocks of oils that are just a little off in some way, that are to be had in fair quantities but of the really desirable grades the supply is limited and is being rather closely held. There have been a large number of new installations, some of the burner people estimating the total number of new installations in this city and immediate suburbs at close to 30,000 this season.

Oil Heating Well Established

Burners are less expensive than formerly, more reliable and heating with oil has become a recognized method so much so that builders who put up bungalows and houses by the hundreds instal an oil burner in each of the new homes. The demand here and in other places shows a steady gain over last year in the consumption of furnace oils. Right now the demand for the zero gas oils is most active of all the furnace oils. Last season the gas oil group had a big advantage over distillates. Early this season the distillates were in active demand, possibly because the dealers had not supplied themselves as freely with distillates as with gas oil, but now the volume of the demand is for the gas oils. There is really very little difference between a straw gas oil and a straw distillate except the gravity and with equally low flash one will answer for the other especially during the cold weather when the burner is not allowed to grow cold between the periods when the oil is flowing and the burner functioning. For this reason and because of the lower price gas oil is substituted by many dealers for distillate when they are confident that the burner will operate successfully.

The heavy industrial fuels are being advanced by some refiners, the usual advance being 2½ cents a barrel. The trouble is to maintain the advance, with such large supplies of heavy fuel oil pressed on the market by some of the refiners. The outlook is for an improved industrial demand and some larger consumption from the use of oil for heating during the colder weather. As yet this market has not struck the larger stride and business is coming slowly and not for material accounts. There are some inquiries and some contracts to be renewed but little real snap to the demand. Some of the Group 3 refiners have been feeling out the situation having something of a surplus to move. They state that they have no great quantity, but are looking the market over as this is the time when fuel oil is expected to move if at all.

While the zero oils from West Texas and other fields producing a similar crude are not available for all purposes, they are usable for so many of the larger purposes that they displace a vast quantity of the fuel oils made from higher priced crudes and for which under less competition higher prices would be obtainable.

Pennsylvania Lubs Strong

Lubricating oils have not been active in this market but the Pennsylvania grades are strong. The advance of 25 cents in Pennsylvania grade crude oil last week has strengthened the market for Pennsylvania lubricants. Bright stocks are specially strong also steam refined stocks. Gulf Coast lubricants are doing better as to price and demand. The motor oil demand is seasonable. Industrial oils are also inactive although there is a good business in sight as soon as the plants resume their full activity.

There have been no tank wagon changes of any moment in this territory and no general change is looked for. In some parts there is price cutting due to local competition and the tactics of the bootleggers. This is considered as unavoidable in the present condition of the markets with a range of 7½ cents or more between the tank wagon price and the refinery price.

In Chicago at the present writing the distributor who buys in Group 3 or on a Group 3 basis has a margin above the delivered price of 5 cents in the tank wagon and 6 cents in the station price. Even if, as some assert they need a 4½-cent margin "to keep them out of the red," there is nothing in the market situation to prevent them from reducing their station price.

TAKES CHARGE IN LOUISIANA

A. B. Patterson, who for several years during the war was in charge of production for The Texas Company with headquarters at Houston, Tex., later being transferred to Denver in charge of the Rocky Mountain region, has been sent to Lake Charles, La., where he will take charge of new development in Louisiana, planned by the company.

Cylinder Stocks Are Strong in East

Gasoline Market Somewhat Weaker Along Atlantic Seaboard. Tank Car Reduction Seen as Stabilizing Influence

A. E. Mockler
New York Bureau, The Oil and Gas Journal

NEW YORK, Jan. 7.—Continued strength in cylinder stocks, with prices again higher, has vied with a generally weaker market for gasoline in this week's news of the petroleum industry in the East Coast area. In the remainder of the market, the new year has started off with little change in fundamental market conditions. Business, on the whole, has been rather light for the week, the market not yet being back in its normal stride after the year-end holidays.

The break in the tank car gasoline market came sooner than had been looked for, developments during the past fortnight having indicated the possibility of a maintenance of the 11-cent level over into the new year. The cut was forced primarily by the continued dearth of new business in the export market, as well as by the steadily declining prices in the Gulf and Group 3 markets, which had carried prices at those points far below the normal differential. The reduction named at East Coast points is seen by some in the trade as a means of stabilizing markets here and protecting them against exploitation by outside sources of supply.

Weather conditions have not been favorable for motoring during the past week, and falling sales totals in the tank wagon end of the business also played their part in bringing about a soft market.

Export prices on cased stocks have not yet yielded to pressure from abroad, but the bulk market is lower both here and at the Gulf, and is by no means steady even at the reduced levels now obtaining.

Gasoline

The unfavorable development in the statistical position of the market, reflected by the Bureau of Mines report for November, brought about an easier feeling in the East Coast gasoline situation this week, and a general reduction of one-half cent a gallon in the tank car schedule resulted. The market for California motor gasoline was but one-fourth cent lower at 10¾ cents, while U. S. Motor from other sources was quoted at 10½ cents. Atlantic Refining Co. precipitated the decline by announcing a half cent cut at Philadelphia, and Standard of New Jersey, Sinclair and other leading factors immediately followed in the reduction. Leaders in the market had hoped to go into the new year with the 11-cent market prevailing, but heavier stocks and decreasing domestic demand brought about the cut.

East Coast refiners have been curtailing their gasoline production, in line with seasonal decline in consumption. November production aggregated 4,550,000 bbls., by both processes, as compared with 4,823,000 bbls. in the previous month. Notwithstanding this cut, however, stocks held November 30 amounted to 4,730,000 bbls., as compared with 4,578,000 bbls. at the close of the previous month. While consumption in eastern territory has continued to run at a record level for this season of the year, rather heavy receipts of California motor fuel have been arriving in principal distributing markets, and this has cut into the natural outlets for gasoline produced at East Coast refineries. It is expected that December figures, when available, will show further additions to stocks, due largely to the curtailed export buying of gasoline during the closing half of the month, when it became apparent that refiners were going to be unable to maintain their export price schedules.

Weakness in the gasoline position in Group 3 territory was also a factor in bringing about the decline in the East Coast basis. While refiners seem to feel that the week's reduction to 10½ cents, tank car basis, has met the changed condition of the market, there is some talk being heard in trade circles regarding the likelihood of a further decline, with a 10-cent market talked of. The trend of the market for the next several weeks, it is thought, will be dependent largely upon the situation with respect to California gasoline receipts. The lower price basis prevailing here, it is thought, will make the East Coast markets less attractive to California refiners, who are currently quoting U. S. Motor gasoline at a price which figures out close to 10 cents a gallon laid down at ports north of Hatteras.

Tank Wagon Gasoline

Cold weather during the week has brought about some contraction in sales to the filling station trade, and distribution through oil company-owned stations has naturally suffered likewise. There is somewhat keener competition for the business reported, notably in the case of premium fuels. A 1-cent reduction in the tank wagon schedule in New York, bringing the market down to 17 cents a gallon, and thus in line with the position in the remainder of the territory, is regarded as a probability for the near future, each company apparently waiting for the other to take the initiative in such a move. Reports from New England territory indicate that cold and snowy weather has curtailed consumption, and advices from the South Atlantic States also note some falling off in demand for tank wagon deliveries.

Considerable interest is shown in the premium fuel situation, due to the sharper competition now being waged in that branch of the market. To date, the principal refiners have been successful in maintaining a 3-cent differential over the tank wagon schedule for U. S. Motor on their premium fuels. It is stated by the leading companies that their extra cost on the premium fuels easily amounts to 3 cents a gallon, and that if they sold this special product any lower, there would not be a satisfactory margin of profit remaining. In view of this phase of the situation, as well as the spirit which dictated the formulation and adoption of the code of ethics for the industry, it is not expected that leading interests in the East Coast Field will resort to price cutting on their premium motor fuels, although the competitive position is expected to continue sharp in actual merchandising of the higher-cost gasoline.

Kerosene

Brisker demand for kerosene has brought about a slight firming up in the market position this week. Refiners continue to quote the tank car market at 9 cents per gallon, with tank wagon delivery 6 cents over this figure, both quotations applying to water white.

Cold weather throughout the territory has stimulated the demand from jobbers, and refiners report some improvement in tank car movement for the week. Buying is expected to hold up within the next several weeks, weather forecasts indicating the probability of a continued cold spell during that period.

With the tank wagon market holding steady at 15 cents a gallon, the market in this territory succeeded in going through the entire year 1928 with no change in the tank wagon basis, something unusual when the usual series of changes in such a quotation within the course of an entire year is taken into consideration. Reports from the New England States are to the effect that sales from tank wagons have picked up considerably within the past week, with the trade in that section, as well as in upper New York State, now going into the season of heaviest consumption on kerosene.

Lubs

Continued short supplies of cylinder oils are reported, and the market is again higher this week. The paucity of wanted grades is so general, however, that the market is little better than nominal, asking prices of individual refiners continuing to show a wide variance. Current asking prices on 600 steam refined cylinder stocks range from 33 to 34 cents per gallon, with 635 steam refined ranging 34 to 35 cents and 650 steam refined held from 37 to 38 cents per gallon. For 600 Pennsylvania flash, the market is quoted nominally at 39 to 40 cents per gallon, with 630 flash virtually unobtainable, held around 43 to 44 cents per gallon. The market for 600 Warren E ranges 34 to 35 cents a gallon, with 600 Oil City E at 33 cents a gallon. Bright stocks have shown further firmness at 49 to 50 cents for light 140-150 and 48 to 48½ cents for dark. Refiners who normally advance their prices by eighths and quarters are now raising their prices as much as 1 to 2 cents per gallon between sales, and it still looks like a sellers' market.

Export demand has been accountable for much of the sensational rise in cylinder oil prices during recent weeks, although domestic consumers, concerned at the steady increase in quotations, have also been forced to come into the market to assure an adequate supply for their prompt and nearby requirements.

Refiners report an improved inquiry for red and pale oils this week, but prices show no change. Pale paraffin oil, 25, is quoted at 11¾ cents per gallon, and has met with a fair inquiry at that figure. In red oil, 200 is reported coming in for a good movement at 9 cents a gallon, with 225 at 9½ cents, 250 at 11 cents, and 285 quotable at 11½ cents per gallon. Export inquiry for red and pale oils has picked up a little.

Fuel Oil

Contrary to the expectations of some in the trade, the new year has got under way with no downward revision in bunker "C." Refiners apparently are unconcerned over the low-priced Shipping Board contracts that became effective January 1, and see no necessity for cutting the general market to the same basis specified in the Emergency Fleet Corp.'s contracts.

The big shipping companies have been drawing stocks of bunker "C" in large volume this week, and refiners are still quoting the open market at $1.05 per barrel, bulk, at refinery terminals, plus the usual 5 cents a barrel for lighterage alongside within the harbor limits. Industrial demand has been well maintained, and furnace oil sales are also satisfactory.

Current selling prices for fuel oil, it is pointed out, are so low that the oil is competing with nothing else. Thus, refiners argue, they have succeeded in getting as much consumption as they can possibly attract on a price basis, and with no added outlets in sight, there is nothing to warrant any further price declines, unless such reductions are forced by the necessity of holding contracts already on the books against competition. One of the functions of the proposed new export corporation, it is suggested, might well be the placing of some of this surplus fuel oil in foreign markets in such manner as to avoid further general price demoralization.

Gas Oil

Conditions are without change this week. Refiners are yetting a good demand for 32-36 oil, which is quoted unchanged at 5¼ cents a gallon by the leading refiner, some sellers still booking at 5 cents on this grade. On lower gravities, the market ranges all the way from 4½ cents upward, depending upon grade and quantity. Refiners are moving the lower grade oil into consumption in a large way on furnace oil contracts, and have considerable quantities of this business on their books through the entire first quarter of the year. The situation with respect to supplies has eased up somewhat in the East Coast area, and comparatively little interest is shown in offerings for shipment from California.

Diesel Oil

Reports in shipping circles indicated considerable contemplated new construction of Diesel tonnage during 1929, both of commercial vessels and the larger types of pleasure yachts. It is also expected that further conversions from steam to Diesel-electric will be undertaken by shipping interests during the year, the recent conversions by the shipping board having proved successful.

Refiners continue to hold the Diesel oil market unchanged at $2 per barrel, and report a good demand at this figure. Most of the large marine business at this port is now under contract, and refiners have a pretty definite idea of what their requirements will be throughout the year. With this at hand, the outlook would appear to favor a stable market for the year, with new consumption records in sight.

Paraffin Wax

Prices have been well maintained throughout the week, but demand has been slow in getting under way, following the competition of inventory work at the factories of consumers. Refiners in the East Coast area are showing firm price views, however, and are not inclined to grant concessions, even on the later positions.

Export inquiry for refined grades was still rather well maintained, but foreign interest in crude scale was lagging somewhat. Operators were looking for cheap wax at the Gulf, but with relatively little success.

Petrolatum

There has been a fair movement into export channels this week, but domestic demand was still rather backward. This latter was attributed to the fact that consumers have just completed their inventory work in most instances, and in some cases have found themselves sufficiently supplied for their prompt and nearby requirements.

Notwithstanding the quiet that has prevailed, however, the market holds in steady position on all grades. Refiners are well booked up on their current output, and in most cases show little willingness to book far ahead at current price levels, sentiment in some quarters indicating the possibility of a further price mark-up before the winter season is at an end. Crude costs to the refiners have advanced since the present price basis was put into effect.

Exports Markets

Softness in export gasoline markets prevailed throughout the week. The trade was looking for a reduction in the price for the cased product, but leading factors continued to maintain the market at 26.40 cents a gallon. Bulk gasoline and naphtha was tending lower, however. The market for Navy in bulk was around 10½ cents here and 8¼ cents at the Gulf, with 60-62 naphtha 11½ cents here and 10 cents at the Gulf. The local market for 64-66 was 12 cents, with the Gulf price 10¼ cents per gallon. There were no new inquiries for cargo lots reported in the market during the week.

Kerosene was moving in a fair way into export channels on the cased prod-

(Continued on Page 130)

Practical Suggestions in Refining

By W. T. Ziegenhain

High Temperatures And Corrosive Oils Prompt Tube Study

There is a very noticeable trend toward operating pipe stills at higher temperatures to increase their throughput and effect some cracking during the initial distillation of the crude and this fact, coupled with the increasing runs of West Texas and other corrosive crudes, have introduced new and more exacting problems in the choice and design of the pipe still tubes. The corrosion problem for the inside of the tube becomes as important as protecting the tube against local heating, blistering and strain for its exterior. Some refiners attempt to solve the problem by using extra heavy steel tubes and when these corrode out to simply replace them. Seamless steel tubes are favored where the corrosion is not severe but where high temperatures and pressures are carried. Where corrosion is a major factor, the use of alloys of steel with nickle, chromium, silicon, etc., is often favored and the use of aluminum coated tubes is also quite general. But while all of these represent a decided improvement over the regular steel tube operators find some objections to all of them. This may be due to the misapplication of the tube itself or because the operation of the plant has changed; but regardless of these facts, the choice of the correct tube remains a very important problem. This is particularly true when considering that a replacement of tubes in a 5,000-bbl. pipe still with 20-foot 4-inch tubes will cost about $4,500 and replace one tube about $200. This represents the small part of the expense, however, for idle equipment soon wipes out any margin left for profits.

Of the various alloys in general use, chromium-steel tubes, containing as high percentage of chromium as 18 to 20 per cent, were used and these resisted corrosion well and resisted "burning" on the outside. After several months' use they became very brittle, however, and with any abnormal strain will often snap. Authorities believe this is due to the crystallization of the metals. Chromium and steel tubes containing lower percentages of chromium have not shown this weakness. Research work is now in progress to find an alloy of chromium and steel that will give maximum life consistent with cost.

In a summary of the research done on alloys to date, W. F. Faragher of the Universal Oil Products Co. says:

"Chromium-nickel steels of the approximate composition 18 per cent of chormium, 8 per cent of nickel, were proposed two years ago, but such tubes have been in service for a much shorter time in all cases of our knowledge. Metallurgists have lauded this alloy as the ideal material for the manufacture of tubes for heating coils of cracking stills.

"A similar alloy that contains in addition 2 per cent of silicon is undergoing test, also. Claims for higher resistance to oxidation and improved welding qualities are made by the manufacturer. The behavior of both during service and the establishment of the cost of using them will be followed with general interest.

"Chrome iron has proved to be resistant to external oxidation and internal corrosion, but its brittleness has prevented successful use in pressure stills. Vapor-phase coils of this alloy operated under atmospheric pressure have proved highly efficient. The deposition of coke in these tubes occurs more slowly than in steel tubes; a definite catalytic effect exerted by steel and not by chrome iron seems to be proved.

Calorized Tubes

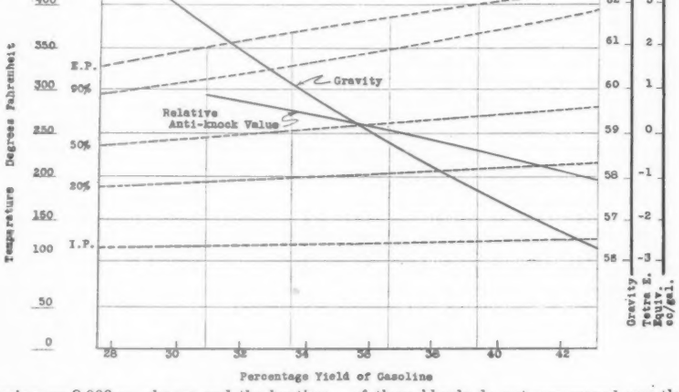
"Calorizing is a process designed to produce a coating that is resistant to the at-

(Continued on Page 130)

RELATION OF ANTIKNOCK VALUE AND DISTILLATION RANGE SHOWN

The relation between the antiknock value, yield, gravity and distillation range of the different commercial endpoint gasolines from the same crude is made a part of the regular procedure during the laboratory evaluation of the various crudes by A. L. Davis, chief chemist of the Empire Oil & Refining Co. These data are plotted on a single graph providing a complete and convenient summary of the results for plant use. Such a graph is drawn for each kind of crude run. The arrangement of the data is illustrated in the accompanying chart showing its completeness and simplicity. The yield data are intended to show what may be expected when running that crude in the refinery on a large scale but it would be impractical to expect an exact duplication of results under the varying methods of plant operations, differences in plant equipment and quantities run. Each plant will find a slightly different relationship existing between the laboratory results and the actual refinery results but this does not detract from the practical value of the method since once the relationship is determined for one crude, a similar relation may be expected to exist for all crudes at any given plant.

The distillation of the crude sample is carried out in two steps. The initial distillation is done at atmospheric pressure



using an 8,000-cc. charge and the heating continued until all of the gasoline and kerosene are recovered. In the complete evaluation of the crude the bottoms are then transferred to a vacuum still and further reduced at 1 mm. mercury to determine the yield of the various lubricating oils, wax and cylinder stock.

In deriving the data six cuts of gasoline are taken. The first fraction is taken during the time the still is heating and is collected until the vapor temperature at the top of the tower reaches 325 degrees Fahrenheit. During each 25 degree increase in the temperature up to 450 degrees Fahrenheit a separate fraction is taken and each of these is held for further inspection.

The volume of each of these fractions is determined after temperature corrections have been made. A blend of the first and second fraction (first over to 325 degrees Fahrenheit and second 325 degrees to 350 degrees Fahrenheit) is made using an amount of each in proportion to their relative yield volumes. This blend is set aside and another made using the first, second and third fractions and blended in proportion to their respective volumes. This is done until all six of the samples are used.

For reference the gravity of each of these fractions is determined. The antiknock value of each of these fractions is also determined, the method used corresponding to that outlined by Midgley, Thomas and Boyd. The result is expressed in cubic centimeters of tetraethyl lead needed to be added to 1 gallon of the gasoline in question to give it the same detonation rating as another gasoline from the same crude but of different distillation range. For this reason the results in the graph are relative and only apply to gasolines made from the same crude.

Explains Procedure

Mr. Davis outlines the procedure in deriving the data for use in making the graph as follows:

1. Using the total volume of crude oil charged, calculate the per cent yield of the first fraction separated. Repeat calculations to determine the per cent yield of the first and second fractions combined. Repeat calculations including next higher fraction for each calculation until the per cent yield of the combined fractions separated (over to 450 degrees Fahrenheit) is obtained with corresponding yields up to each point at which fractions were separated.

These yields (on crude oil basis) correspond to the distillations and gravities previously obtained on proportionate blends. Usually the distillation ranges of these blends do not correspond exactly to the ranges specified for marketable products. This requires further caculation to determine the exact yield of the various grades, namely, 325 degrees Fahrenheit, 350 degrees Fahrenheit, 375 degrees Fahrenheit, 400 degrees Fahrenheit, 425 degrees Fahrenheit, 437 dedegrees Fahrenheit and 450 degrees Fahrenheit maximum point and U. S. Motor gasolines.

2. Construct a chart using 1 inch, or other convenient cross-section paper with temperature in degrees Fahrenheit plotted along the vertical or "y" axis and per cent yield plotted along the horizontal or "x" axis so that the temperature range will include the limits of the gasoline distillations and the percentage range includes the per cent yields of the various fractions. Plot the A.S.T.M. distillation of the first fraction separated (over to 325 degrees Fahrenheit) along a vertical axis drawn through the per cent yield of this fraction represented on the horizontal axis. Plot distillation of each blend along the vertical axis corresponding to the per cent yield of the total fractions included in the blend. Connect the initial point, each 10 per cent point, and the maximum point of each distillation with straight lines so that each straight line will include the corresponding points of each distillation. In case of slight variance draw the line through the mean of these points.

If the blends are carefully prepared and A.S.T.M. distillations are correct the corresponding points of each distillation will fall in a straight line when plotted in this manner. The maximum points of the first fraction and first blend are usually exceptions to this rule due to the difficulty of obtaining a true maximum point in this range. If these points appear to be erratic disregard them and extend line through the maximum points of the four higher blends down to intersect a horizontal line through 325 degrees Fahrenheit on the "y" axis.

Proceed along the line connecting the maximum points of each distillation and drop a vertical line to the "x" axis from the point where a horizontal line through 325 degrees Fahrenheit on the "y" axis intersects this line. At the intersection of this vertical line with the "x" axis read the per cent yield of 325 degrees Fahrenheit maximum point gasoline and record.

Drop vertical lines to the "x" axis from the following points along the maximum point line; 350 degrees Fahrenheit, 375 degrees Fahrenheit, 400 degrees Fahrenheit, 425 degrees Fahrenheit, 437 degrees Fahrenheit and 450 degrees Fahrenheit. Read per cent yield and distillation of each gasoline and record.

To determine the per cent yield and distillation of the gasoline meeting U. S. Motor specifications, drop the vertical line so that the initial point, 20 per cent, 50 per cent and 90 per cent points will not exceed the values specified.

3. In the same manner plot the gravity in A.P.I., the tetraethyl lead equivalent in cubic centimeters to the gallon, as previously determined for each fraction against the per cent yield of each fraction. Connect corresponding points with straight lines or curves and read the properties corresponding to the per cent yield of each grade of gasoline.

Recent Patents

PARTIAL STABILIZER USED

1,694,272. Preparing Hydrocarbon Products. Nathaniel E. Loomis, Elizabeth, N. J., assignor to Standard Oil Development Co., a corporation of Delaware. Filed July 13, 1923. Serial No. 651,249. 1 Claim. (Cl. 196—12.)

The improvement in the art of preparing hydrocarbon products, which comprises introducing a light condensate containing some hydrocarbons which are normally gaseous into the intermediate region of an absorber tower, and passing vaporizing constituents up through progressively cooler zones, while maintaining a pressure of 100-300 pounds per square inch and supplying a flow of heavy naphtha countercurrently, and drawing off a substantially balanced gasoline from the bottom of the tower.

CONVERT COLOR MATTER

1,695,251. Process for Decolorizing Kerosene, Gasoline, and Similar Light Petroleum Distillates. Vladimir Anatole Kalichevsky, Willowbrook, Calif., assignor to Union Oil Co. of California, Los Angeles, Calif., a corporation of California. Filed September 19, 1927. Serial No. 220,637. 13 Claims. (Cl. 196—147.)

A process for decolorizing lighter petroleum distillates containing coloring matter not readily adsorbable by clay, comprising treating the distillates with alkali sufficient to convert said matters into adsorbable forms and then commingling the distillate with acid and clay for adsorption of said adsorbable forms.

Brief Items for Petroleum Refiners

U. S. Supreme Court Holds Price Fixing Law to Be Invalid

The long controversy relative to the Tennessee gasoline price fixing law was ended last week when the United States Supreme Court held that the statute was invalid. The decision was based on the finding that the states legislatures do not have the constitutional power to fix prices at which commodities may be sold unless the business concerned was "affected with a public interest."

The final decision was the result of an appeal from the Tennessee Supreme Court which had upheld the state law which was passed by the state legislature in 1927. Justice Sutherland rendered the opinion of the court with a dissenting opinion by Justice Holmes.

The decisions in the state courts had held that gasoline is a public utility due to its general usage and its indispensability. It was also held that the sale of gasoline in Tennessee was in the nature of monopoly in the hands of a few large dealers. The State of Tennessee had maintained in the trial of the suits brought by the Standard Oil Co. of Louisiana and The Texas Company that it was the practice of these large companies to depress prices for a time and then advance them when their competitors had been forced out of business.

The oil companies denied that they had been guilty of unfair practices and asserted that the real purpose of the legislation in Tennessee was not to benefit the ultimate consumers but to keep in business the jobbers who were being injured by the producing companies selling direct to filling stations or other retail dealers.

The United States Supreme Court held that the only issue it was called upon to decide was the right of state legislature under the Federal Constitution to fix the price of gasoline. The court asserted that a state had no right to impose on foreign corporations doing business within its borders conditions which require the relinguishment of rights guaranteed by the Federal Constitution.

PAY HIGH PREMIUM FOR CAT CREEK CRUDE OIL

The Yale Oil Corp. of South Dakota operating a refinery at Miles City, Mont. established a record in the payment of a premium for Cat Creek, Mont. crude oil last week when its bid for the government's royalty crude was accepted by the Department of Interior. The company bid a premium of $1.01 over the posted price for 39 degree gravity crude oil in Oklahoma and Kansas or Montana. The Oklahoma-Kansas crude oil is now bringing a posted price of $1.51 which means that the Yale corporation will pay $2.52 a barrel for the Cat Creek crude oil starting February 1, when the contract with the government becomes effective.

The Cat Creek crude has a 49 degree A.P.I. gravity and in a refinery operation it is customary to secure around 55 per cent gasoline in a skimming operation. The royalty oil in 1928 amounted to approximately 39,800 bbls. or a little over a 100 bbls. a day. In addition to the high field price the Yale corporation must pay a rail transportation charge as the field is located about 150 miles from the Miles City refinery. The corporation buys other crude in the Cat Creek Field. Its Miles City plant has a capacity of 800 bbls. daily.

The Lewiston Oil & Refining Co., with a refinery at Lewiston near the field had previously been purchasing the government's royalty oil under contract which was canceled recently after a ruling by the Department of Justice that its renewal was invalid.

MAJOR CALIFORNIA DISTRIBUTORS SELL OR LEASE RETAIL STATIONS

By L. P. Stockman

LOS ANGELES, Calif., Jan. 5.—The Pacific Coast is witnessing one of the most interesting evolutions in merchandising ever undertaken in this section as a result of the action of refiners in disposing of their various company-owned service stations either through lease to individuals or by outright sale. The policy of leasing out stations was instituted first by the Standard Oil Co. of California a few years ago and a check indicates that the company has disposed of all but about 200 stations out of a total of about 800 originally held. The Union Oil Co. adopted this policy a few weeks ago and in a very short time turned loose all but about 50 stations which will be retained in conformity with the general policy adopted by other major refiners.

In disposing of company-owned stations refiners have as a rule selected their most efficient employes as recipients of leases under the new arrangement but the Shell company stepped out this week and on January 2 transferred 187 service stations to Van Fleet and Durkee, a new firm recently organized for that specific purpose. All of the Shell stations affected are located in Los Angeles County but if the new company is successful in its operations it will have the option of expanding into other territory under a similar arrangement. The turning over of the Shell-owned stations to another company is a slight variation of the policy of other major companies which have been leasing their stations direct to employes to be operated as independent units.

The move of turning the stations over to another company which in turn will lease to employes but retail control is a new one and is regarded as an interesting experiment in marketing business on the Pacific Coast. Under the new plan the Shell will retain supervisory interest in the experiment thus doubly guaranteeing its success.

Originators of Plan

The originators of this unique plan are W. C. Van Fleet and W. P. Durkee, formerly with the General Petroleum Corp., a subsidiary of the Standard Oil Co. of New York. The former had been with the General Petroleum for 14 years and at the time of resigning was assistant

(Continued on Page 134)

NEW YORK COMPANIES CUT GASOLINE PRICES

NEW YORK, Jan. 8.—Warner Quinlan Co., operating 80 gas stations in New York City and New Jersey, and the Municipal Service Corp., operating 60 stations in New York, have opened what looks like a gasoline war in New York City. The Municipal company recently cut high compression gasoline 2 cents to 19 cents and ordinary gasoline to 15 cents. Warner Quinlan yesterday announced an immediate reduction of 7 cents on high compression "Mileage Plus" to 14 cents and discontinuation of ordinary gasoline sales. A report in the trade here is that further cuts will be made by the two warring companies but that the big gas companies will not enter the feud. Standard Oil officials declare the present 20 to 23-cent price level will not be affected.

David Sherman, official of Warner Quinlan, denied that a price war was on and declared the elimination of ordinary gasoline and concentration of activity in high compression would bring economy in sales cost and compensate for the elimination of low-grade gasoline. He declared sales since the cut justify this view. Other oil people declare the price war is an attempt by large independents to attract business during off season, using large accumulated stocks here to justify the move.

William H. Lyons, president of the Municipal company, also denied a price war, saying the cuts were the usual annual anniversary sale. He says the company made good profits in 1928 and is simply passing along to customers a share in the profits.

J. M. AMES DIES

John McEwen Ames, 64, president of the Kanotex Refining Co. died suddenly at his home in Arkansas City, Kans., Sunday, January 6. Heart trouble was the cause of his death.

Mr. Ames was the organizer of the Kanotex company and was widely known in refining and marketing circles. He was a director of the Western Petroleum Refiners Association and the Independent Oil Men of America.

CHANGE HOUSTON PLANT TO LARGE BULK STATION

HOUSTON, Tex., Jan. 5.—Conversion of the former Keen & Wolf Co.'s refinery site on the Houston Ship Channel into a large bulk plant and unloading docks for the Gulf Refining Co. will be started in the near future. Contracts were let the past week for the construction of docks, extension of railroad facilities, a pumping plant, an office building and additional storage. An estimated $200,000 will be spent in the construction.

The Keen & Wolf refinery and tank farm were purchased several months ago by the Gulf Refining Co., and the use of the site for a terminal and bulk plant will prove of particular benefit for the Gulf. At present the company's bulk plant is located on the opposite side of Houston from the ship channel, necessitating double handling of all gasolines and oils moved to Houston for this district.

These products have had to be unloaded from tank cars at the plant or from boats on the channel and hauled by tank wagon to the bulk plant. With the completion of the new plant, the company will be able to ship all its products in by boat from Port Arthur and unload directly into the storage at the plant.

TO BUILD PIPE LINE

The Skelly Oil Co. and the White Eagle Oil & Refining Co. will build a 6-inch pipe line connecting their refineries to the field north of Wichita, Kans. A 6-inch line will be built northeast out of the field to Towanda. At that point two 4-inch lines will connect to the Skelly's refinery at El Dorado, Kans. and the White Eagle's refinery at Augusta, Kans.

WESLEY NUNN RESIGNS

Wesley Nunn has resigned as manager of the Ponca City, Okla., sales division of the Marland Refining Co. Mr. Nunn was connected with the Marland company for several years. He was formerly in charge of all bulk and service stations and more recently general manager of tank car sales.

FREDERICKS MANAGER OF SALES FOR PIERCE

C. C. Fredericks, for the past five years, president of the St. Louis Pump Co., has been appointed director of sales for the Pierce Petroleum Corp. Mr. Fredericks is widely known in oil marketing circles due to his connection with the sale of oil jobbing equipment. Previous to his connection with the St. Louis company, Mr. Fredericks was connected with the S. F. Bowser Co., Fort Wayne manufacturers of station equipment.

C. C. Fredericks

Mr. Fredericks will have his headquarters at the St. Louis offices of the Pierce company. H. L. Deming, who was in temporary charge of sales, will return to his duties as assistant to the president, E. D. Levy.

R. R. IRWIN PRESIDENT OF WHITE EAGLE CO.

R. R. Irwin, who has been vice president in charge of refinery operations and sales for the White Eagle Oil & Refining Co. for several years, was elected president of the company at a meeting of the board of directors last week. He succeeds L. L. Marcell, who becomes chairman of the board. Other officers elected were E. A. Kermott, vice president in charge of crude production; H. Vanderslice, vice president; Milo, T. Jones, secretary, and A. N. Allen, treasurer.

In announcing the change in the executive personnel of the company, Mr. Marcell said:

"The business of our company has grown to such an extent during its 10 years of operation that it has seemed desirable to elect an operating head to relieve me of the active direction of the different divisions. Mr. Irwin, who has been associated with me and my companies for many years and who is familiar with all branches of our business, has been selected as president and general manager. I shall continue to be the financial and executive head of the company, and my holdings in the company will remain undisturbed."

H. F. Bagby has resigned as vice president, but will remain a director. R. D. Mering, who was station manager under Mr. Bagby, succeeds him as vice president in charge of station sales distribution.

Natural Gasoline Manufacture

CHARLES BROWN DIES AT HOME IN TULSA THURSDAY

Charles E. Brown, vice president of the Warren Petroleum Co., died at his home in Tulsa Thursday, January 3. Mr. Brown had been in ill health during the past year and was confined to his home with influenza and pneumonia three weeks previous to his death.

Mr. Brown had a wide circle of friends among natural gasoline manufacturers

Charles E. Brown

and the oil industry generally. He was first employed with the Sun Oil Co. in the eastern states. Later he came to the Mid-Continent and was connected with the gasoline departments of the Gypsy Oil Co. and the Twin State Oil Co.

Seven years ago he became associated with W. K. Warren in the organization of the Warren Petroleum Co., a natural gasoline marketing company, and continued in an executive capacity with that company until his death.

Funeral services were held Saturday morning at the Christ King Church, Tulsa. He is survived by his widow and three children.

SAM CARNEY WILL HEAD SHELL DEVELOPMENT

Sam Carney of Tulsa has been made director of research for the Shell Development Co. and will move to San Francisco immediately. Mr. Carney has been active in the natural gasoline industry in the Mid-Continent having directed the research work of the Shell company's (Roxana) natural gasoline plants here.

He has also been very active in association work having served on the board of directors and as an officer in the Natural Gasoline Association of America for several years. In his new work he will take charge of all development work for the entire company.

NEW CALIFORNIA PLANTS

The Norwalk company last week started operating a new 30,000 gallon oil absorption plant in the Santa Fe Springs Field of California. The company erected its first plant in the Santa Fe Springs Field in 1922. With the new plant the company has a plant capacity of 85,000 gallons.

In the new Elwood Field of California, the Barnsdall Oil Co. and Rio Grande Oil Co. are building an oil absorption plant. The plant will have an initial capacity of 20,000 gallons daily.

NATURAL GASOLINE OUTPUT AGAIN ESTABLISHES PRODUCTION RECORD

Natural gasoline manufacturers again established a new record in natural gasoline output by producing 158,100,000 gallons of gasoline during November, according to the latest report of the Bureau of Mines. The average daily production of 5,270,000 gallons in November was approximately 3 per cent greater than the average in October which was the highest previous production.

The increase in November production over October is accounted for by a sensonal increase in the Appalachian area and the continued expansion of natural gasoline plants in the Greater Seminole area of Oklahoma. In the Appalachian area the November production increased 1,300,000 gallons and that of Seminole increased 2,100,000 gallons. Kansas also showed an increase of 200,000 gallons with a 500,000-gallon increase in the Texas Panhandle.

In Santa Fe Springs the October reduction of 2,900,000 gallons jumped to 3,900,000 gallons in November. The state as a whole registered a decrease of 800,000 gallons.

The following table summarizes the government's report of natural gasoline plant operations for November:

NATURAL GASOLINE, NOVEMBER, 1928
(Thousands of gallons)

	Natural Gasoline: Production Nov. 1928	Production Oct. 1928	Production Jan.-Nov. 1928	Production Nov. 1927	Stocks End of month Nov. 1928	Stocks End of month Oct. 1928	Blended Motor Fuel—Naphtha November, 1928: Natural Gasoline Used	Naphtha or Other Oils Used	Stocks End of Month
Appalachian	9,200	7,900	89,100	8,300	2,032	1,922	109	130	236
Ill., Ky., etc.	1,000	1,200	12,500	1,400	281	292	7	12	6
Oklahoma:	55,400	52,600	547,200	49,900	7,095	7,140	1,774	2,487	572
Seminole	25,100	23,000	.....	.....	2,019	1,690	402	684	138
Osage County	7,600	8,100	.....	.....	797	1,222	19	16	5
Rest of State	22,700	21,500	.....	.....	4,279	4,228	1,353	1,787	429
Kansas	3,200	3,000	32,400	3,100	892	618	29	2	7
Texas:	30,400	30,400	300,200	27,500	3,747	4,181	418	481	153
Panhandle	12,100	11,600	.....	.....	1,105	1,663	158	192	32
North Texas	4,000	3,700	.....	.....	673	545	88	83	34
West Central	13,000	13,700	.....	.....	1,835	1,826	127	149	74
Rest of State	1,300	1,400	.....	.....	134	147	45	57	13
Louisiana	4,800	4,800	50,700	3,900	875	745	19	26	18
Arkansas	2,600	2,700	29,500	2,800	259	248	...	...	1
Rocky Mountain	3,900	4,200	42,100	3,900	642	552	...	...	..
California:	47,600	48,400	495,400	41,700	1,155	1,190	(Not Available)		
Long Beach	17,200	18,400	.....	.....	....	....	...	...	..
Ventura Ave.	5,300	5,800	.....	.....	....	....	...	...	..
Seal Beach	2,400	2,400	.....	.....	....	....	...	...	..
Huntington Beach	3,900	4,100	.....	.....	....	....	...	...	..
Santa Fe Springs	3,900	2,900	.....	.....	....	....	...	...	..
Rest of State	14,900	14,800	.....	.....	....	....	...	...	..
U. S. Total	158,100	155,200	1,599,100	142,500	16,978	16,888	2,356	3,138	993
Daily Average	5,270	5,010	4,770	4,750	....	....	...	...	..

SINCLAIR TO ENLARGE PLANTS IN OKLAHOMA

The Sinclair Oil & Gas Co. is adding six 175-horsepower units to its new gasoline plant located in the St. Louis Pool of Oklahoma. With the new units the plant, which started operating about two months ago will have a total of 19 units. The expansion is to take care of excess gas now available in the St. Louis area and also provide plant facilities for the gas which will be available in Section 18-7-5, where the Slick and others well on the Davis tract has been completed. The Sinclair company has large acreage in that section. A 20-inch line connecting the well with the plant is now being laid.

The Sinclair company is also enlarging two of its plants which have been in operation for several years. In the Shamrock Pool of Oklahoma the company is adding two 175-horsepower units to its plant making a total of six units. New wells in that section have increased the available gas supply.

Two 80-horsepower units will be added to the company's Cleveland, Okla., plant making a total of eight units. This is one of the oldest operating plants in Oklahoma. It was built by the Oklahoma Petroleum & Gasoline Co. in 1917 and was acquired by the Sinclair company in 1919. Additional gas is available due to the fact that the Gypsy Oil Co. has dismantled its Widener plant located in that area. The Sinclair plant is now the only plant left in that field, The Texas Company plant having been dismantled about a year and a half ago.

A Practical Suggestion

A DISTRIBUTOR

In the operation of a gasoline plant having more than one absorber, it is necessary to distribute both oil and gas properly. Even in small plants two absorbers are often used, the smaller being used as a tail gas absorber instead of a recompressor. Since recycling has the effect of stabilizing and the smaller plants are often not equipped with stabilizers the work of stabilizing is thus accomplished.

Following is a description of a distributor found to be very practical. The device is primarily an orifice meter. It is equipped with three gate valves the center one of which has a loose flapper. Through this flapper a small hole is drilled to form the orifice plate. In operation, the two outside valves are opened and the flapper is closed, the hole serving as the feed. Extra flappers having different sized holes are provided and are used when different volumes are desired.

It is suggested the flapper be raised at intervals to permit the accumulation of material to pass to safeguard against clogging.

Practical suggestions by those connected with the construction and operation of natural gasoline plants are invited. Payment will be made as soon as suggestions are accepted. Address all communications to the Natural Gasoline Department, The Oil and Gas Journal, Tulsa.

HUMBLE FINISHES PLANT IN BROWN COUNTY, TEXAS

The Humble Oil & Refining Co. has completed and started operating its oil absorption plant located near Bangs in Brown County, Texas. The plant is making approximately 2,000 gallons of gasoline daily.

The Humble company now has a natural gasoline production of 50,000 gallons daily. This production comes from 12 plants located at scattered points in Texas. In addition to this production the company which is one of the major refiners of the oil industry, is a large buyer of natural gasoline.

Following is a list of the Humble plants and the present daily production:

Location in field—	(*)
Stevens County	2,300
Stevens County	3,600
Stevens County	6,400
Stevens County	2,000
Eastland County	2,200
Wichita County	1,300
Navarro County	14,700
Brown County	8,300
Throckmorton County	1,800
Wilbarger County	3,000
Freestone County	1,400
Brown County	2,000
Total	49,700

Note—All plants of the oil absorption except Eastland County, which is a compression plant. *Daily plant capacity output in gallons.

OKLAHOMA CITY PLANT

The Indian Territory Illuminating Oil Co. is moving natural gasoline plant equipment to the Bodine lease which is a quarter-mile northwest of the company's discovery well in the Oklahoma City Field. The company will install an oil absorption unit with sufficient capacity to take care of the 6,000,000 feet of gas which are available daily from the new well.

The gas from the well has a content of 1.6 gallons per thousand feet so that the plant will have a natural gasoline output of around 9,000 gallons daily. The plant will be built so that it can be enlarged when additional wells are completed in the field.

NEW SEMINOLE PLANT

The gasoline department of the Empire Oil & Refining Co. is building a new combination compression and gas lift plant on its lease in Section 11-8-5, Oklahoma. This lease is located about midway between the Mission and Maud pools and west of the Bowlegs Pool.

At present four 170 horsepower units are bing installed. The Empire company has one well producing and three drilling on its 160-acre lease. The capacity of the plant probably will be increased when more wells are completed and additional gas is available. The one well is producing from the Wilcox sand.

REMODEL TEXAS PLANTS

The Texas Company has remodeled its plant at Bald Hill, Okla. The compressor equipment has been replaced with a 6,000 gallon absorption and distillation unit. The company also is remodeling its plant at Douglas, Kans. A 10,000 gallon absorption unit will be installed. Southwestern equipment is being used at both plants.

INSTALLING LARGE UNIT

The Shell Petroleum Corp. (Roxana) is installing a 15,000 gallon absorption unit of the Southwestern type at its new plant in the North Maud Pool of the Greater Seminole area. This unit is to have a 28-bubble pan fractionating absorber. Two units of the same type were installed in the St. Louis Pool, Oklahoma plant in December.

PROPER DISTILLATION EQUIPMENT

. . . Necessary to maintain Oil Efficiency!

Lighter Absorption oils have a distinct advantage over heavy oils as an absorbent medium.

ERECO FRACTIONATING STILLS

Permit the use of light oils as only *gasoline* fractions can pass overhead and *no* gasoline is left in the denuded oil.

Write for Bulletin No. 2

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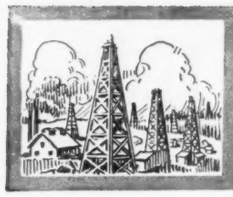


REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

GASOLINE AND NAPHTHA

	Jan. 8		Jan. 1		Dec. 26	
OKLAHOMA (Group 3)—						
50-52 450 endpoint	.07½	.07¾	.07½	.07¾	.07¾	.08
56-58 450 endpoint	.07½	.07¾	.07½	.07¾	.07¾	.08
58-60 450 endpoint	.07½	.07¾	.07½	.07¾	.07¾	.08
*58-60 437 endpoint (U. S. Motor)	.0802		.0833		.087	
*60-62 432 endpoint	.0825		†.08¼	.08½	.0886	
*60-62 400 endpoint	.085		†.085		.095	
*64-66 375 endpoint	.0975		†.09¼	.09½	.1025	
68-70 360 endpoint	.09¼	.09½	.09¼	.09¾	.09½	.10
64-66 437 endpoint (blend)	.07½	.08	.07¾	.08	.08	.08½
NORTH TEXAS—						
56-58 450 endpoint	.07¼		.07¼	.07½	.07½	.08
58-60 450 endpoint	.07¼		.07¼	.07½	.07¾	.08
58-60 437 endpoint (U. S. Motor)	.07⅜	.07⅝	.07½	.07¾	.08	.08¼
60-62 400 endpoint	.07¾	.08	.08	.08¼	.08½	.08¾
64-66 390 endpoint	.08	.08¼	.08¼	.08¾	.08¾	.09
64-66 375 endpoint	.08¼	.08½	.08½	.08¾	.08¾	.09¼
68-70 360 endpoint	.09		.09	.09¼	.09¼	.09½
64-66 437 endpoint (blend)	.07¼	.07½	.07½	.07¾	.08¼	.08½
NORTH LOUISIANA—						
58-60 437 endpoint (U. S. Motor)	.08	.08¼	.08¼	.08½	.08¾	
ARKANSAS—						
58-60 437 endpoint (U. S. Motor)	.08	.08¼	.08¼	.08½	.08½	.08¾
PENNSYLVANIA—						
52-54 Naphtha	.09¼	.09½	.09¼	.09½	.09¼	.09½
54-56 Naphtha	.09	.10	.09¾	.10	.09¾	.10
58-60 Gasoline	.10	.10¼	.10	.10¼	.10¼	.10½
60 Gasoline	.10½	.10¾	.10½	.10¾	.11½	.11¾
62 Gasoline	.10¾	.11	.10¾	.11	.12½	.12¾
64 Gasoline	.12	.12¼	.12	.12¼	.12¼	.12½
CALIFORNIA—						
58-60 437 endpoint (U. S. Motor) domestic	.10	.11	.10	.11	.10	.11
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 endpoint (Naphtha)	.07½	.07¾	.07¾		.08	
56-58 450 endpoint	.07½	.07¾	.07¾		.08	
58-60 437 endpoint (U. S. Motor)	.07½	.08	.07¾	.08	.08	.08½
60-62 400 endpoint	.08¼	.08½	.08¼	.08½	.08½	.09
64-66 375 endpoint	.09	.09¼	.09¼	.09½	.09	.09¼
68-70 360 endpoint	.09½	.09¾	.09¾	.10	.10	
64-66 437 endpoint (blend)	.07¾	.08	.08⅛	.08¼	.08¼	.08½

*Weighted average prices January 7 and December 31 and 24, as reported by representative refiners. Sales to jobbers only. †No sales reported. Prices given are general market.

NATURAL GASOLINE

	Jan. 8		Jan. 1		Dec. 26	
OKLAHOMA (Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.07¼		.08		.08⅜	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.05¾	.06	.06½	.06¾	.07⅜	.07½
Grade B, 76-83.9, 375 e.p., rec. 85%	.05⅝		.06¼	.06½	.06¾	
Grade BB, 84-92, 375 e.p., rec. 85%	.05½	.05⅝	.06	.06¼	.06⅜	.06½
Grade C, 80-90, 375 e.p., rec. 78%	.05¼	.05⅜	.06		.06⅜	.06½
NORTH TEXAS—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.07¼		.08		.08⅜	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.05¾	.06	.06½		.07⅜	
Grade B, 76-83.9, 375 e.p., rec. 85%	.05⅝		.06¼		.06¾	.07
Grade BB, 84-92, 375 e.p., rec. 85%	.05½		.06	.06¼	.06⅜	.06½
Grade C, 80-90, 375 e.p., rec. 78%	.05¼		.06		.06⅜	
NORTH LOUISIANA—						
Grade AA, 80-87, 375 e.p., rec. 90%	.06¼	.06½	.06¾	.07	.07¾	.08
Grade BB, 84-92, 375 e.p., rec. 85%	.06		.06½	.06¾	.06⅝	.06¾
Grade C, 80-92, 375 e.p., rec. 78%	.05¾	.06	.06½		.06¾	.07
CALIFORNIA—						
75-78, 375-390 endpoint	.07¼	.07¾	.07¼	.07¾	.07¼	.07¾
CHICAGO DISTRICT (Based on Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.07½		.08		.08⅜	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.06		.06½		.07⅜	.07½
Grade B, 76-83.9, 375 e.p., rec. 85%	.05¾		.06¼		.06¾	
Grade BB, 84-92, 375 e.p., rec. 85%	.05⅝		.06		.06⅜	.06½
Grade C, 80-90, 375 e.p., rec. 78%	.05½		.06		.06⅜	.06½

BURNING OIL

	Jan. 8		Jan. 1		Dec. 26	
OKLAHOMA (Group 3)—						
41-43 water white Kerosene	.05¼	.05½	.05⅜	.05⅝	.05½	.05¾
42-44 water white Kerosene	.05¾	.06	.05⅞	.06	.05⅞	.06⅛
NORTH LOUISIANA—						
41-43 water white Kerosene	.06	.06¼	.06¼		.06½	
NORTH TEXAS—						
41-43 water white Kerosene	.05⅛	.05¼	.05¼	.05½	.05¼	.05½
40-42 water white Kerosene	.05	.05¼	.05¼		.05¼	
ARKANSAS—						
41-43 water white Kerosene	.06	.06¼	.06¼	.06½	.06¼	.06½
PENNSYLVANIA—						
43 Kerosene prime white	.07	.07⅛	.07	.07⅛	.07	.07¼
45 Kerosene water white	.07⅛	.07¼	.07⅛	.07⅜	.07⅜	.07½
46 Kerosene water white	.07½	.07¾	.07½	.07¾	.07½	.07¾
47 Kerosene water white	.07¾		.07¾	.08	.07¾	.08
300 Mineral Seal	.07	.07¼	.07⅛	.07⅜	.07¼	.07½
CALIFORNIA—						
38-40 water white Kero. (high-burning test)	.06½	.07	.06½	.07	.06½	.07
Engine distillate, 43-44, 445 endpoint	.07½	.08	.07½	.08	.07½	.08
Engine distillate, 42-44, 480 endpoint	.07	.07½	.07	.07½	.07	.07½
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white Kerosene	.05¼	.05½	.05½	.05⅝	.05½	.05⅝
42-44 water white Kerosene	.05¾	.06	.05⅞	.06	.05⅞	.06

FUEL OILS

	Jan. 8		Jan. 1		Dec. 26	
OKLAHOMA (Group 3)—						
Below 18 Fuel Oil, per bbl.	.50	.55	.50	.55	.50	.55
18-22 Fuel Oil, per bbl.	.55	.57½	.55	.57½	.55	.57½
22-26 Fuel Oil, per bbl.	.60	.62½	.60	.62½	.60	.62½
24-26 Fuel Oil, per bbl.	.62½	.65	.62½	.65	.62½	.65
26-30 Fuel Oil, per bbl.	.65	.70	.65	.70	.65	.70
28-30 Fuel Oil, per bbl. (industrial)	.80	.82½	.80	.82½	.80	.82½
28-30 Fuel Oil, per bbl. (zero cold test)	.90	.92½	.87½	.92½	.85	.90
32-36 Gas Oil (dark)	.02⅝	.02¾	.02⅝	.02¾	.02½	.02⅝
32-36 Gas Oil (straw color)	.02¾	.02⅞	.02¾	.02⅞	.02⅝	.02¾
36-38 Distillate	.03⅛	.03¼	.03⅛	.03¼	.03⅛	.03¼
38-40 Straw Distillate	.03½	.03¾	.03½	.03¾	.03⅜	.03¾
NORTH TEXAS—						
Below 20 fuel Oil	.50	.52½	.50	.52½	.50	.52½
24-26 Fuel Oil, per bbl.	.52½	.55	.52½	.55	.52½	.55
32-36 Gas Oil (straw)	.02½	.02⅝	.02½	.02⅝	.02⅜	.02½
38-40 Straw Distillate	.03⅜	.03⅝	.03⅜	.03⅝	.03¼	.03⅜
NORTH LOUISIANA—						
18-20 Fuel Oil, per bbl.	.75		.75		.75	
32-36 Gas Oil	.03		.03		.03	.03⅛
ARKANSAS—						
33-36 Distillate	.03¼	.03½	.03¼	.03½	.03¼	.03½
32-36 Gas Oil (straw)	.03		.03		.03¼	
16-22 Refinery Fuel Oil, per bbl.	.75		.75		.75	
GULF COAST (South Texas)—						
Gas Oil	.04¼	.04½	.04¼	.04½	.04¼	.04½
Bunker C Fuel, per bbl.	.80	.90	.80	.90	.80	.90
PENNSYLVANIA—						
30-34 Fuel Oil	.04⅜	.04⅝	.04⅜	.04⅝	.04⅜	.04⅝
36-40 Fuel Oil	.04¾	.04⅞	.04¾	.04⅞	.04¾	.04⅞
CALIFORNIA—						
33-36 Distillate	.03¾	.04	.03¾	.04	.03¾	.04
27-32 Distillate	.03	.03½	.03	.03½	.03	.03½
*15-20 Fuel Oil, Bunker (at tide water)	.85	1.00	.85	1.00	.85	1.00
15-20 Fuel Oil (cargo lots), per bbl.	.75	.85	.75	.85	.75	.85
27 plus Diesel, per bbl.	1.15	1.19	1.15	1.19	1.15	1.19
CHICAGO DISTRICT (Based on Group 3)—						
22-26 Fuel Oil, Group 3, bbl.	.60	.65	.60	.65	.60	.65
18-22 (Group 3), per bbl.	.52½	.55	.52½	.55	.52½	.55
16-20 Smackover, per bbl.	.90		.90		.90	
28-30 Fuel Oil (zero)	.92½	1.00	.92½	1.00	.90	1.00
32-36 Gas Oil, zero	.02⅞	.03⅛	.02⅞	.03⅛	.03	.03¼
32-36 Gas Oil (industrial)	.02½		.02½		.02½	
36-38 Distillate	.03¼	.03½	.03¼	.03½	.03⅜	.03½
38-40 Straw Distillate	.03⅝	.03¾	.03⅝	.03¾	.03⅝	.03¾

*Bunker.

LUBRICATING OIL AND WAX

	Jan. 8		Jan. 1		Dec. 26	
OKLAHOMA (Group 3)—						
100 vis., 2 color, 20-25 cold test	.06	.06¼	.06	.06¼	.06	.06¼
100 vis., 3 color, 20-25 cold test	.06		.06		.06	
150 vis., 3 color, 20-25 cold test	.08	.08¼	.08	.08¼	.08	.08¼
150 vis., 4 color, 20-25 cold test	.08		.08		.08	
180 vis., 3 color, 23-28 cold test	.09¼	.09½	.09¼	.09½	.09¼	.09½
180 vis., 4 color, 23-28 cold test	.09	.09¼	.09	.09¼	.09	.09½
180 vis., 5 color, 23-28 cold test	.09	.09¼	.09	.09¼	.09	.09¼
200 vis., 3 color, 23-28 cold test	.09¼	.09½	.09¼	.09½	.09½	.09¾
200 vis., 4 color, 23-28 cold test	.09⅛	.09¼	.09⅛	.09⅜	.09⅛	.09½
200 vis., 5 color, 23-28 cold test	.09	.09¼	.09	.09¼	.09	.09½
240 vis., 3 color, 25-30 cold test	.13½	.13¾	.13½	.13¾	.13½	.13⅝
240 vis., 4 color, 25-30 cold test	.13	.13¼	.13	.13¼	.13	.13½
240 vis., 5 color, 25-30 cold test	.12	.12¼	.12	.12¼	.12	.12½
280 vis., 3 color, 25-30 cold test	.15¼	.15½	.15¼	.15½	.15¼	.15½
280 vis., 4 color, 25-30 cold test	.14¾	.15	.14¾	.15	.14¾	.15
280 vis., 5 color, 25-30 cold test	.13¾	.14	.13¾	.14	.13¾	.14
Cylinder Stocks:						
600, steam refined, light green	.09	.11	.08	.10	.08	.10
600, steam refined, dark green	.08	.09	.08	.09	.08	.09
190-200 vis. @ 210 Bright Stock	.30	.33	.30	.32	.30	.32
150-160 vis. @ 210 Bright Stock	.28	.31	.28	.29	.28	.29
Waxes:						
124-126 White Crude Scale Wax	.05		.04¾	.05	.04¾	.05
PENNSYLVANIA—						
34 Neutral	.07½	.07¾	.07½	.07¾	.07½	.07¾
34 Sundebloom	.08¼	.08½	.08¼	.08½	.08¼	.08½
36 Miners' Neutral	.07⅛	.07½	.07⅛	.07½	.07⅛	.07½
150, 3 color	.21½	.22	.21½	.22	.21	.21½
180, 3 color	.25½	.26	.25½	.26	.24½	.25
200, 3 color	.28½	.29	.28	.28½	.27½	.28
220, 3 color	.30½	.31	.30½	.31	.30½	.31
600, steam refined	.23½	.24	.23¼	.24	.22½	.23
635, steam refined	.28½	.29	.27½	.28	.25	.25½
650, steam refined	.29½	.30	.29¼	.30	.27½	.28
600, Pennsylvania flash	.31½	.32	.31½	.32	.29½	.30
630, Pennsylvania flash	.36½	.37				
*550, E filtered	.16	.16½	.16	.16½	.16	.16½
*600, E filtered	.17½	.18	.17½	.18	.17½	.18
600, E filtered	.26½	.27	.26½	.27	.23½	.24
600, D filtered	.28½	.29	.28½	.29	.28½	.29
550, E filtered	.15½	.16	.15½	.16	.15½	.16
550, D filtered	.21½	.22	.21½	.22	.21½	.22
Pennsylvania Bright Stock	.39	.40	.39	.40	.36	.37
†122-124 White Crude Scale Wax	.05¼	.05⅜	.05¼	.05⅜	.05¼	.05⅜
†124-126 White Crude Scale Wax	.05⅜	.05½	.05⅜	.05½	.05⅜	.05½
GULF COAST (South Texas)—						
No. 2 color, 100 vis., pale oil	.06½	.07	.06½	.07	.06¼	.07
No. 3 color, 200 vis., pale oil	.08½	.09	.08½	.09	.08½	.09
No. 3 color, 300 vis., pale oil	.11	.11½	.11	.11½	.11	.11½
No. 3½ color, 500 vis., pale oil	.12½	.13	.12½	.13	.12½	.13
No. 4 color, 750 vis., pale oil	.15	.15½	.15	.15½	.15	.15½
No. 5 to 6 color, 200 vis., red oil	.08¼	.08½	.08¼	.08½	.08¼	.08½
No. 5 to 6 color, 300 vis., red oil	.09¼	.09½	.09¼	.09½	.09¼	.09½
No. 5 to 6 color, 500 vis., red oil	.10½	.11½	.10½	.11½	.10½	.11½
No. 5 to 6 color, 750 vis., red oil	.13¼	.14	.13¼	.14	.13¼	.14
No. 2½ color, 200 vis., pale filtered	.11¾	.12¼	.11¾	.12¼	.11¾	.12¼
No. 2½ color, 300 vis., pale filtered	.13½		.13½		.13½	
No. 2½ color, 500 vis., pale filtered	.15½	.16	.15½	.16	.15½	.16
No. 2½-3 color, 750 vis., pale filtered	.18	.20	.18	.20	.18	.20
CALIFORNIA—						
130 vis., 2½-3 color	.10¼	.10½	.10¼	.10½	.10¼	.11
200 vis., 2½-3 color	.11½	.11¾	.11½	.11¾	.11½	.12
300 vis., 3-3½ color	.13	.13¼	.13	.13¼	.13	.13½
350 vis., 3½-4 color	.13½	.13¾	.13½	.13¾	.13½	.14

*At Warren, Pa. †At New York.

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

400 vis., 3½-4 color	.15	.15½	.15	.15½	.15	.16
Red Neutral:						
200 vis., 4½-5 color	.11¼	.11½	.11¼	.11½	.11½	.11¾
300 vis., 5-6 color	.11¾	.12	.11¾	.12	.11¾	.12½
400 vis., 5-6 color	.13½	.14	.13½	.14	.13½	.14½
500 vis., 4½-5 color	.15¼	.15½	.15¼	.15½	.15	.15½
500 vis., 5-6½ color	.15	.15¼	.15	.15¼	.15¼	.15¾
600 vis., 6½ plus color	.15½	.15¾	.15½	.15¾	.15½	.16

Note: Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) REFINERY PRICES

	Jan. 8	Jan. 1	Dec. 26
Gasoline, U. S. Motor, 5860, 437	.10½	.10½	.11
Kerosene, water white, 41-43	.09	.09	.09
*Fuel Oil, Bunker "C," 14-16, per bbl.	1.05	1.05	1.05
†Fuel Oil, Diesel, 28-30, per bbl.	2.00	2.00	2.00
Gas Oil, 32-36 gravity	.05¼	.05¼	.05¼
25 pale Paraffin Oil	.11¾	.11¾	.11¾
28 pale Paraffin Oil	.07½	.07½	.07½
285 red Paraffin Oil	.11½	.11½	.11½
250 red Paraffin Oil	.11	.11	.11
225 red Paraffin Oil	.09½	.09½	.09½
200 red Paraffin Oil	.09	.09	.09
Refined Wax:			
120-122 a.m.p., per lb.	.05⅝	.05⅝	.05⅝
125-127 a.m.p., per lb.	.05⅞	.05⅞	.05⅞
130-132 a.m.p., per lb.	.06¾	.06¾	.06¾
133-135 a.m.p., per lb.	.07⅜	.07⅜	.07⅜
135-137 a.m.p., per lb.	.07¾	.07¾	.07¾
Petrolatum in bbls., carload lots, per lb.:			
Dark green	.02	.02	.02
Amber	.03½	.03½	.03½
Extra amber	.03¾	.03¾	.03¾
Cream	.06½	.06½	.06½
Lily white	.07½	.07½	.07½
Snow white	.08½	.08½	.08½

*Lighterage, 5.0c a barrel extra. †Lighterage, 6.5c a barrel extra.

NEW YORK (BAYONNE) EXPORT PRICES

	Jan. 8		Jan. 1		Dec. 26	
Gasoline, U. S. Motor, 58-60 437, in cases	.2640		.2640		.2640	
Kerosene, standard white, in cases	.1765		.1765		.1765	
Kerosene, water white, in cases	.1890		.1890		.1890	
600, steam refined cylinder stocks, in bbls.	.33	.34	.30		.27	
635, steam refined	.34	.35	.31		.28	
650, steam refined	.37	.38	.34		.32	
600, Pennsylvania flash	.39	.40	.38		.34	
630, Pennsylvania flash	.43	.44	.42		.40	
600, Warren E	.34	.35	.35		.29	
600, Oil City E	.33		.34		.28	
Light 140-150 Bright Stocks	.49	.50	.46		.44	
Dark 140-150 Bright Stocks	.48	.48½	.44		.42	

LOS ANGELES EXPORT PRICES

	Jan. 8		Jan. 1		Dec. 26	
Kerosene, water white	.05½	.06	.05½	.06	.05½	.06
U. S. Motor Gasoline, 53-55, 437 e.p.	.08	.08¼	.08	.08¼	.08	.08¼.

CALIFORNIA CRUDE OIL PRICES

Standard Oil Co.-Union Oil Co. (Effective August 15, 1928)*

Gravity—	1 Richfield Torrance Olinda-Brea Alamitos Heights Signal Hill Seal Beach Huntington Beach Athena Rosecrans-Dom'guez Inglewood	2 Whittier La Habra Coyote Hills	3 †Kern River Newhall-McKittrick Midway-Sunset Elk Hills Lost Hills Belridge Buena Vista Hills	4 ‡Montebello	5 §Santa Fe Springs	6 *Coalinga	7 ‡Wheeler Ridge	8 ‖Orcutt	9 Ventura
14 to 14.9	.85	.85	.75	.85	....	.75	.75	.85	.85
15 to 15.9	.85	.85	.75	.85	....	.75	.75	.85	.85
16 to 16.9	.85	.85	.75	.85	....	.75	.75	.85	.85
17 to 17.9	.85	.85	.75	.85	....	.75	.75	.85	.85
18 to 18.9	.85	.85	.75	.85	....	.75	.75	.85	.85
19 to 19.9	.85	.85	.75	.85	....	.75	.75	.85	.85
20 to 20.9	.85	.85	.77	.86	....	.77	.77	.85	.85
21 to 21.9	.89	.88	.79	.89	.89	.79	.79	.86	.86
22 to 22.9	.93	.91	.82	.92	.92	.82	.82	.87	.87
23 to 23.9	.97	.94	.86	.95	.95	.85	.85	.90	.90
24 to 24.9	1.01	.97	.90	.98	.98	.88	.88	.93	.94
25 to 25.9	1.05	1.00	.95	1.01	1.01	.91	.91	.95	.98
26 to 26.9	1.09	1.04	1.00	1.04	1.04	.94	.94	.97	1.02
27 to 27.9	1.13	1.08	1.05	1.07	1.07	.98	.97	....	1.06
28 to 28.9	1.17	1.12	1.10	1.10	1.10	1.02	....	....	1.10
29 to 29.9	1.21	1.16	1.16	1.13	1.15	1.06	....	....	1.14
30 to 30.9	1.25	1.20	1.22	1.16	1.20	1.10	....	....	1.18
31 to 31.9	1.30	....	1.28	....	1.25	1.14	....	....	1.22
32 to 32.9	1.35	....	1.34	....	1.30	1.18	....	....	1.28
33 to 33.9	1.41	....	1.40	....	1.35	1.22	....	....	....
34 to 34.9	1.47	....	1.46	....	1.40	1.26	....	....	....
35 to 35.9	1.53	....	....	....	1.45	1.30	....	....	....
36 to 36.9	1.59	....	....	....	1.50	....	....	....	....
37 to 37.9	1.65	....	....	....	1.55	....	....	....	....
38 to 38.9	1.71	....	....	....	1.60	....	....	....	....
39 to 39.9	1.77	....	....	....	1.65	....	....	....	....
40 to 40.9	1.83	....	....	....	....	....	....	....	....
41 to 41.9	1.89	....	....	....	....	....	....	....	....
42 to 42.9	1.95	....	....	....	....	....	....	....	....

*Column 1—Signal Hill, Seal Beach, Huntington Beach and Alamitos Heights crude, 14 to 32.9 gravity, inclusive; Richfield, Olinda-Brea and Fullerton, 14 to 30.9 gravity; Torrance and Inglewood 14 to 28.9 gravity. Domingues and Athens-Rosecrans, 24 to 42.9 gravity.

Column 2—Whittier crude, 14 to 22.9 gravity; Coyote Hills, 14 to 30.9 gravity.

Column 3—Kern River, Newhall and McKittrick, 14 to 19.9 gravity; Midway-Sunset, Buena Vista and Elk Hills, 14 to 32.9 gravity; Lost Hills, 14 to 34.9 gravity.

Columns 8 and 9 posted by Union Oil Co. only.

†On October 2 Standard Oil Co. of California discontinued contracting for purchase of Kern River crude and on October 20 established following prices on grades below 14 gravity —11 to 11.9 degrees at 45 cents, 12 to 13 degrees at 50 cents.

On December 1 the Union Oil Co. adopted the above schedule of the Standard on Kern River crude and in addition posted Midway-Sunset, Elk Hills, Buena Vista, Lost Hills and Coalinga crude as follows: 11-11.9 gravity, 45 cents; 12 to 12.9 gravity, 55 cents; and 13 to 13.9 gravity at 65 cents. All grades of Elwood crude were cut 7 cents.

CRUDE OIL GRAVITY TABLE

Gravity—	1 Okla., Kans., N. C. Tex.	2 No. La. and Arkansas	3 Smackover, Ark.	4 Stephens, Ark.	5 Gray County (Texas Panhandle)	6 Salt Creek, Wyo.	7 Grade B & Light Crude (G. Coast)	8 Somerset (South Central Texas)
24 and above	....	....	.90	....	....	....	....	....
Below 24	....	....	.76	....	....	....	....	....
Below 25	.60	....	....	....	....	....	1.15	....
25 to 25.9	.67	....	....	....	....	....	....	....
Below 26	....	....	....	....	....	....	....	....
26 to 26.9	.74	....	....	....	....	....	1.19	....
27 to 27.9	.81	....	....	....	....	....	1.21	....
Below 28	....	.81	....	.75	.68	....	....	....
28 to 28.9	.88	.88	....	.77	.68	....	1.23	....
29 to 29.9	.95	.95	....	.79	.75	.95	1.25	....
30 to 30.9	1.02	1.02	....	.81	.82	1.02	1.27	....
31 to 31.9	1.09	1.09	....	.83	.89	1.09	1.29	....
32 to 32.9	1.16	1.16	....	.85	.96	1.16	1.31	1.05
33 to 33.9	1.21	1.21	....	....	1.01	1.21	1.33	1.07
34 to 34.9	1.26	1.26	....	....	1.06	1.26	1.35	1.09
35 to 35.9	1.31	1.31	....	....	1.11	1.31	1.37	1.11
36 to 36.9	1.36	1.36	....	....	1.16	1.36	....	1.13
37 to 37.9	1.41	1.41	....	....	1.21	1.41	....	1.15
38 to 38.9	1.46	1.46	....	....	1.26	....	....	1.17
39 to 39.9	1.51	1.51	....	....	1.31	....	....	....
40 to 40.9	1.56	1.56	....	....	1.36	....	....	....
41 to 41.9	1.61'	1.61	....	....	1.41	....	....	....
42 to 42.9	1.66	1.66	....	....	1.46	....	....	....
43 to 43.9	1.71	1.71	....	....	1.51	....	....	....
44 and above	1.76	1.76	....	....	1.56	....	....	....

Column 1—Magnolia Petroleum Co. posted schedule August 2, 1928, making price below 25 gravity 60 cents per barrel, 25-25.9 gravity 67 cents, 26-26.9 gravity 74 cents, and 27-29.9 gravity 75 cents, 30-30.9, 90 cents, and 31-31.9, $1.05, with balance of the price schedule as shown.

Oklahoma—Prairie Oil & Gas Co., Sinclair Oil & Gas Co., Gypsy Oil Co., Carter Oil Co., The Texas Company, July 26.

North Central Texas—[Including Ranger, Mexia, Powell, Richland, Wortham, Lytton Springs (Southwest Texas, Iatan and Panola (Iatan posted at flat price of 93 cents by Magnolia on January 14, 1928).] Currie, Nocona and Moran. Prairie, Sinclair and Gulf, The Texas Company, Humble Oil & Refining Co., July 26.

Kansas—Prairie, Sinclair; Carter, The Texas Company, July 26.

Column 2—Arkansas and North Louisiana—[Caddo, Bull Bayou, Crichton, De Soto, Haynesville, Homer, and El Dorado only], Standard Oil Co. of Louisiana, Louisiana Oil Refining Co., and Gulf Refining Co., August 2. Magnolia Petroleum Co. schedule effective August 7 applies to Pine Island, Haynesville, Bull Bayou, Louisiana, and El Dorado, Ark., light crude. The Texas Company August 8 posted prices below 28 gravity at 7 cents differential per degree with minimum of 60 cents for all below 25 gravity.

Column 3—February 6, Louisiana Oil Refining Co., February 7, Standard Oil Co. of Louisiana, The Texas Company, Gulf Refining Co., Magnolia Petroleum Co., and on February 10, Atlantic Oil Producing Co.

Column 4—Atlantic Oil Producing Co., Louisiana Oil Refining Corp., August 8.

Column 5—Humble Oil & Refining Co., July 26.

Column 6—Midwest Refining Co., July 26. All crude over 37 gravity $1.41 per barrel.

Column 7—Humble Oil & Refining Co. and other major buyers (schedule ends 35 and above). March 14, with exception of Magnolia Petroleum Co., which stops at 31 degrees gravity. Sun Pipe Line Co. and The Texas Company posted 2 cents differential for each degree above 35 gravity and $1.47 for 40 gravity and above.

Column 8—Grayburg Pipe Line Co. and Pioneer Oil & Refining Co., April 7.

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

Corsicana heavy (March 14, 1927)*....$1.00
Other fields .....See gravity table

*Posted by Magnolia Petroleum Co.

TEXAS PANHANDLE
Carson and Hutchinson

Below 32 gravity	$ .69
32-32.9	.76
33-33.9	.81
34-34.9	.86
35-35.9	.91
36-36.9	.96
37-37.9	1.01
38-38.9	1.06
39-39.9	1.11
40-40.9	1.16
41-41.9	1.21
42-42.9	1.26
43-43.9	1.31
44 and above	1.36

Wheeler County

Below 30 gravity	$ .65
30-30.9	.72
31-31.9	.79
32-32.9	.86
33-33.9	.91
34-34.9	.96
35-35.9	1.01
36-36.9	1.06
37-37.9	1.11
38-38.9	1.16
39-39.9	1.21
40-40.9	1.26
41-41.9	1.31
42-42.9	1.36
43-43.9	1.41
44 and above	1.46
Gray County	See gravity table

Humble Oil & Refining Co., and Magnolia Petroleum Co., July 26.

WEST TEXAS

Iatan* .....Same as North Texas
Crane-Upton-Crockett, Pecos, Winkler and Glasscock (July 26)‡.....0 .65
Chalk† 80

*Includes Howard County and Westbrook Fields. Marland Refining Co. pays $1.05 for Howard County crude, effective May 21.

†Magnolia Petroleum Co., January 14, 1928.

‡Posted by Humble Oil & Refining Co., Magnolia Petroleum Co., and Gulf Pipe Line Co.

ARKANSAS-NORTH LOUISIANA

Cotton Valley (Below 36 gravity April 11) .....$ .75
Bellevue (Feb. 27, 1927) 1.35
Urania (Oct. 16, 1928) ..... .90
East El Dorado (March 16, 1927) 1.00
Other fields .....See gravity table

*Cotton Valley crude above 36 gravity takes same gravity price schedule as shown for North Louisiana and Arkansas crude in Mid-Continent gravity price table.

Note—Cotton Valley and Bellevue posted by Standard Oil Co. of Louisiana, Louisiana Oil Refining Co., Gulf Refining Co., and Magnolia Petroleum Co.; (Magnolia Petroleum Co. posted Cotton Valley February 8); Urania posted by Louisiana Oil Refining Corp.; East El Dorado, Magnolia Petroleum Co., Gulf Refining Co.

GULF COAST

(Goose Creek, Hull, Liberty, West Columbia, Orange, Boling, Sour Lake, Humble, Sugarland, Raccoon Bend, High Island, Pierce Junction and Spindletop.)

Grade A (March 14)* $1.30
Grade B .....See gravity table
Jennings, La. (March 14)† $1.05
Saratoga, Batson, Daytona (March 14, 1927)‡ 1.30
Markham (March 14)‡ 1.00
High Island (December 14)‖ 1.00

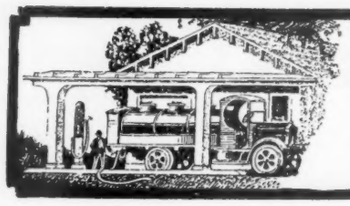
*Humble Oil & Refining Co. and other major buyers. †Gulf Pipe Line Co. ‡Sun Pipe Line Co. §The Texas Company. ‖Posted by Gulf Pipe Line Co.

ROCKY MOUNTAIN STATES
Ohio Oil Co.-Midwest Refining Co.
(Effective July 27, 1928)

Rock Creek, Wyo.	$1.33
Salt Creek .....See gravity table	
Big Muddy	1.33
Grass Creek, heavy	.90
Grass Creek, light	1.48
Mule Creek (May 1)	1.10
Elk Basin	1.48
Lance Creek	1.48
Poison Spider (March 14, 1927)	1.00
Notches (March 14, 1927)	.65
Rex Lake (February 22)	1.10
Osage	1.48
Lost Soldier (contract)	.95
Hamilton Dome (March 14, 1927)	.85
Greybull-Torchlight	1.48
Cat Creek (Montana)	1.48
Sunburst (Montana) (May 18, 1928)	1.65
Artesia	1.05
Hogback (New Mexico)	1.48

Note—Salt Creek, Osage, Cat Creek, Greybull and Hogback posted by Midwest Re-

(Continued on Page 126)



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns Jan. 8.

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Chicago dist.	16.0	16.0	...	12.0
Decatur, Ill.	15.2	15.0	...	12.1
East St. Louis.	14.4	16.4	...	11.2
Joliet	15.4	17.4	...	12.3
Peoria	15.2	14.0	...	12.1
Quincy	15.2	17.2	...	11.9
Davenport	18.5	20.5	3.0	12.3
Des Moines	18.5	18.5	3.0	12.3
Keokuk	18.5	20.5	3.0	12.3
Sioux City	18.1	20.1	3.0	11.9
Duluth, Minn.	18.5	20.5	2.0	12.9
Mankota	18.1	20.1	2.0	12.7
Minneapolis	18.2	20.2	2.0	12.9
La Crosse, Wis.	18.2	20.2	2.0	13.0
Milwaukee	17.1	19.1	2.0	11.9
Madison	17.3	19.3	2.0	12.1
Detroit, Mich.	18.8	20.8	3.0	13.7
Grand Rapids	18.7	20.7	3.0	13.6
Saginaw	18.9	20.9	3.0	13.8
Evansville, Ind.	18.0	20.0	3.0	13.0
Fort Wayne	18.4	18.4	3.0	13.4
Indianapolis	18.2	18.2	3.0	13.2
South Bend	18.4	20.4	3.0	13.4
Fargo, N. D.	19.9	19.9	2.0	14.9
Huron, S. D.	20.3	22.3	4.0	13.7
Sioux Falls	19.1	21.1	4.0	13.4
K. C., Mo.*	17.9	17.9	3.0	10.6
Springfield*	17.8	19.8	3.0	11.5
St. Louis*	16.9	16.9	2.5	11.2
St. Joseph*	17.5	17.5	3.0	11.2
Wichita, Kans.	15.8	17.8	2.0	10.8
Bartlesville, Ok.	16.5	18.5	3.0	10.5

*State tax 2 cents; remainder city tax.

NAPHTHA

	Tank wagon	Tank car
Oleum spirits	14.7	11.9
V. M. & P. naphtha	16.2	12.9
Cleaner's naphtha	18.0	13.9
Stanisol	19.0	14.9

Tank wagon prices f.o.b. Chicago; tank car prices f.o.b. Whiting. Effective January 5.

STANOLIND FURNACE OIL IN CHICAGO

Less than 100 gallons	9.0
100 to 799 gallons	8.0
800 or more gallons	7.5

Note—Outside Chicago furnace oil discount of 1 cent per gallon is given on deliveries of 100 to 349 gallons and 1½ cents on deliveries of 350 gallons or more.

The following quantity discounts from the service station price are allowed on monthly sales of gasoline: 2,000 gallons or less, 2 cents; more than 2,000 and less than 6,000 gallons, 2½ cents; more than 6,000 gallons, 3 cents. Discounts are allowed each month, and they are not cumulative. Delivery tickets showing date and quantity delivered must be sent to the seller before the tenth of the month to secure the discount on the previous month's purchases.

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Dallas, Tex.	16.0	20.0	2.0	12.0
Fort Worth	16.0	19.0	2.0	12.0
Houston	16.0	20.0	2.0	15.0
San Antonio	14.0	17.0	2.0	11.0
El Paso	17.0	20.0	2.0	16.0
Texarkana	16.0	20.5	2.0	13.0
Muskogee, Ok.	18.0	20.0	3.0	12.0
Okla. City	18.0	20.0	3.0	12.0
Tulsa	17.0	19.0	3.0	10.0
Ft. Smith, Ark.	18.0	20.0	5.0	14.0
Little Rock	21.0	23.0	5.0	14.0

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Atlanta, Ga.	22.0	24.0	4.0	16.5
Augusta	22.0	24.0	4.0	15.5
Macon	22.0	22.0	4.0	16.5
Savannah	21.0	23.0	4.0	14.5
Birm'ham, Ala.	22.0	24.0	4.0	16.0
Mobile	22.0	24.0	4.0	15.0
Montgomery	20.0	21.0	4.0	16.5
Clarks'le, Miss.	22.0	24.0	5.0	13.0
Jackson	19.0	21.0	5.0	14.5
Natchez	20.0	22.0	5.0	14.0
Gulfport	23.5	25.5	5.0	14.0
Vicksburg	21.5	23.5	5.0	14.0
Jack'ville, Fla.	23.0	25.0	5.0	13.5
Miami	24.0	26.0	5.0	16.5
Pensacola	24.0	26.0	5.0	13.5
Tampa	23.0	25.0	5.0	13.5
Lexington, Ky.	21.0	22.0	5.0	15.5
Covington	22.0	22.0	5.0	15.5
Louisville	21.0	23.0	5.0	15.0
Ashland	22.0	24.0	5.0	15.5
Catlettsburg	22.0	24.0	5.0	15.5

In addition to the state tax of 4 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and one-half cent on kerosene. Kerosene prices in Georgia include 1-cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene and one-fourth cent on gasoline. Pensacola and Mobile taxes includes 1-cent city levy. Gulf port tax includes privilege tax of 2 cents in addition to state tax.

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Omaha	17.25	19.25	2.0	12.25
McCook	18.75	20.75	2.0	13.75
Norfolk	17.75	19.75	2.0	12.75
N. Platte	18.75	20.50	2.0	13.50
Scotsbluff	18.75	20.75	2.0	13.25

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Denver, Colo.	17.0	20.0	3.0	14.5
Pueblo	19.0	22.0	3.0	14.5
Grand Junction	22.5	25.5	3.0	18.0
Casper, Wyo.	19.0	22.0	3.0	13.0
Cheyenne	20.0	23.0	3.0	14.5
Butte, Mont.	23.5	26.5	3.0	19.0
Helena	23.5	26.5	3.0	19.0
Salt Lake, Utah	22.0	25.0	3.5	17.0
Albu'que, N. M.	22.0	25.0	5.0	17.0
Boise, Idaho	24.5	27.5	4.0	19.0
Twin Falls	24.5	27.5	4.0	19.0

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Atlantic City	17.0	20.0	2.0	13.0
Newark, N. J.	17.0	20.0	2.0	13.0
Annapolis, Md.	19.0	22.0	4.0	13.0
Baltimore	19.0	22.0	4.0	13.0
Cumberland	19.0	22.0	4.0	13.0
Washington	17.0	20.0	2.0	13.0
Danville, Va.	20.0	23.0	5.0	13.0
Norfolk	20.0	23.0	5.0	13.0
Petersburg	20.0	23.0	5.0	13.0
Roanoke	20.0	23.0	5.0	13.0
Richmond	20.0	23.0	5.0	13.0
Ch'rlst'n, W. V.	19.0	22.0	4.0	13.0
Keyser	19.0	22.0	4.0	13.0
Parkersburg	19.0	22.0	4.0	13.0
Wheeling	19.0	22.0	4.0	13.0
Charlotte, N. C.	19.0	22.0	4.0	13.0
Hickory	19.0	22.0	4.0	13.0
Mt. Airy	19.0	22.0	4.0	13.0
Salisbury	19.0	22.0	4.0	13.0
Ch'lston, S. C.	20.0	23.0	5.0	13.0
Columbia	20.0	23.0	5.0	13.0

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Albany, N. Y.	18.0	20.0	...	15.0
New York*	18.0	20.0	...	15.0
Buffalo	18.0	20.0	...	14.0
Rochester	18.0	20.0	...	14.0
Syracuse	18.0	20.0	...	15.0
Boston, Mass.	17.0	18.0	...	15.0
Augusta, Me.	21.0	22.0	4.0	15.0
Manch't'r, N.H.	21.0	22.0	4.0	15.0
Burlington, Vt.	20.0	21.0	4.0	15.0

*Prices in steel barrels.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
N.Orleans, La.*	15.5	18.5	3.0	10.0
Baton Rouge	14.0	17.0	2.0	14.5
Alexandria	15.0	18.0	2.0	16.0
LaFayette	15.0	18.0	2.0	15.5
Lake Charles	15.5	18.5	2.0	16.0
Shreveport	15.5	18.5	3.0	16.0
Knoxv'le, Tenn.	19.0	22.0	3.0	16.0
Memphis	17.0	20.0	3.0	12.5
Chattanooga	18.5	21.5	3.0	16.0
Nashville	18.0	21.0	3.0	16.0
Bristol	19.0	22.0	3.0	15.0
Lit. Rock, Ark.	19.0	22.0	3.0	13.0

*Tax of 3 cents includes city tax of 1 cent. Louisiana kerosene prices include 1-cent state tax and 1-cent parish tax.

PENNSYLVANIA-DELAWARE AND PART NEW ENGLAND

The Atlantic Refining Co.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
Pittsburgh, Pa.	16.0	*20.0	...	14.0
Philadelphia	16.0	*20.0	...	14.0
Scranton	16.0	*20.0	...	14.0
Allentown	16.0	*20.0	...	14.0
Altoona	16.0	*20.0	...	14.0
Erie	16.0	*20.0	...	14.0
Dover, Del.	19.0	20.0	3.0	14.0
Wilmington	19.0	20.0	3.0	14.0
Springf'd, Mass.	18.0	18.0	...	14.0
Worcester	18.0	18.0	...	14.0
Boston	18.0	18.0	...	14.0
Providence, R.I.	20.0	20.0	2.0	14.0
Hartford, Conn.	20.0	20.0	2.0	14.0
New Haven	20.0	20.0	2.0	14.0

*Includes tax of 3.0 cents. Pennsylvania tax is collected by the dealer and paid by him direct to the State.

OHIO

Standard Oil Co. (Ohio)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
All Ohio points	19.0	20.0	3.0	12.0

PACIFIC COAST TERRITORY

Standard Oil Co. (California)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incl'ds tax of	Kero. tank wagon
San Francisco	17.0	21.0	3.0	15.5
Los Angeles	16.5	20.5	3.0	15.5
Reno, Nev.	22.0	26.0	4.0	19.0
Portland, Ore.	17.5	21.5	3.0	16.5
Seattle, Wash.	16.5	20.5	2.0	16.5
Tacoma	16.5	20.5	2.0	16.5
Spokane	20.5	24.5	2.0	20.5
Phoenix, Ariz.	18.0	22.0	4.0	20.5

CRUDE OIL PRICE CHANGES

January 4—Joseph Seep Purchasing Agency advanced all grades of Pennsylvania grade oil 25 cents.

January 7—Humble Oil & Refining Co. reduced Mirando, Tex., crude 20 cents to 80 cents.

TO ESTABLISH RECORD IN REFINERY CONSTRUCTION

A new record in refinery construction is in the making in the construction of the new refinery of the White Star Refining Co. which as announced last week will be built at Detroit, Mich. A contract has been closed with the Southwestern Engineering Co. which calls for the completion of a 6,000 pipe still and bubble tower unit by March 1. The Southwestern company will furnish all equipment and complete the installation so that it is ready to operate.

R. B. Millard, district manager at Tulsa for the Southwestern and T. B. Leach left last week for the Los Angeles headquarters of the company. Most of the equipment for the White Star unit will be fabricated at the Los Angeles plant.

The Universal Oil Products Co. has been awarded a contract for two 1,000 Dubbs cracking units for the Detroit refinery. Construction of the units will start immediately. The refinery will start operating in early summer.

TO LAY EL PASO LINE

KANSAS CITY, Mo., Jan. 5.—It is announced by J. J. Connor, senior member of the Connor & Son Construction Co. that his company has been awarded the contract by the El Paso Gas Co. for laying 105 miles of 16-inch pipe line from a field in southeastern New Mexico to El Paso. A telephine line, along the same route and including branches and connections, will traverse 220 miles.

The Joslyn Manufacturing & Supply Co. of North Kansas City is to supply poles for the telephone line and the Standard Underground Cable Co. is to supply insulation, wire and cable.

Three hundred men will be employed to start in 10 days at Clint, Tex., and the initial construction crew will be taken from Kansas City.

SET RATE HEARINGS

The Interstate Commerce Commission has assigned Part 4-A of its rate structure investigation, No. 17,000, involving rate on refined petroleum products from, to and between points in the Southwest, for hearing on January 28, at Dallas, Tex., February 4 at Tulsa, Okla., and February 11 at Kansas City, Mo. before Examiners Fuller and Peyser.

START CRACKING UNIT

The Italo Petroleum Corp. is completing the installation of a cracking unit at its Hynes, Calif., refinery. The unit has a capacity of 1,000 bbls. daily and will operate with heavy residuum as charging stock.

TULSA LECTURE COURSE ON PETROLEUM STARTS

The special course in the oil and gas industry conducted under the auspices of the public school system of Tulsa started Tuesday night, January 8, with a lecture on petroleum geology by Harry F. Wright. The course continues until March 28 with lectures on Tuesday and Thursday night of each week through January, February and March.

The lecture course is an annual event in Tulsa and is largely attended by employes of oil companies and others interested in one or more branches of the oil industry. The course covers four general subjects as follows: Producing companies, purchasing and transporting companies, refining companies and marketing companies. The lectures are given by men actively engaged in the subject they discuss, being connected in most instances with large oil companies operating from Tulsa.

The course is open to everyone who cares to attend. Lectures are given from 7 to 9 o'clock on Tuesday and Thursday nights at the Tulsa Public Library. A registration fee of $2 is charged.

The following oil men of Tulsa are members of the advisory committee:

Rush Greenslade, Gypsy Oil Co., chairman; C. C. Herndon, Skelly Oil Co.; James A. Veasey, Carter Oil Co.; John R. Wheeler, Sinclair Oil & Gas Co.; E. B. Huston, Grant Drilling Co.; Ralph C. Riley, J. A. Hull Co.; S. H. Glassmire, secretary and leader in charge.

CRUDE OIL PRICES

(Continued from Page 125)

fining Co., and the remainder by the Ohio Oil Co. Both companies post Grass Creek light and Elk Basin.

SOUTH CENTRAL AND SOUTHWESTERN TEXAS

Luling (May 5)*	$1.00
Mirando (January 7)†	.80
Rockdale-Minerva (April 15):	
Below 38 gravity	1.35
38-38.9 gravity	1.37
39-39.9 gravity	1.39
40 and above	1.41
Thrall‡	
Callihan (May 15)	1.75
Lytton Springs (Lockhart)	See gravity table
Somerset	See gravity table

*Posted by Magnolia Petroleum Co.
†Magnolia Petroleum Co., Humble Oil & Refining Co., Crown Central Pipe Line Co.
‡Thrall prices same as North Central Texas less 19½ cents per cwt. freight.

EASTERN STATES

(Effective January 4, 1929)
(Effective December 14, 1928)

Penna Grade Oil in New York Transit Lines (New York)	$4.10
Bradford District Oil in National Transit Lines (Pennsylvania)	4.10
Penna Grade Oil in National Transit Lines (Pennsylvania)	4.00
Penna Crude Oil in Southwest Pennsylvania Lines (West Virginia)	4.00
Penna Grade Oil in Eureka Pipe Line Lines (Pennsylvania)	3.90
Penna Grade Oil in Buckeye Pipe Line Lines (Ohio)	3.85
Cabell Grade Oil in Eureka Pipe Line Lines (West Virginia) (July 13)	1.55
Corning 35-cent Grade Oil in Buckeye Pipe Line Co.'s Lines (December 17)	1.80
Corning 25-cent Grade Oil in Buckeye Pipe Line Co.'s Lines (December 17)	1.90
Somerset Oil in Cumberland Pipe Line Lines (Kentucky) (Sept. 14, 1928)	1.75
Ragland Grade Oil in Cumberland Pipe Line Lines (Kentucky) (August 1)	.95

MIDDLE WESTERN STATES

Ohio Oil Co.
(Effective July 27, 1928)

Lima	$1.60
Wooster (October 17)	1.77
Illinois	1.55
Indiana	1.37
Princeton	1.56
Plymouth	1.38
Waterloo (November 17, 1926)	1.35
Western Kentucky* (Sept. 17, 1928)	1.63
Saginaw, Mich., Saginaw Sand (February 10)†	1.89
Saginaw, Mich., Berea Sand (February 10)†	1.79
Cumberland, Clay, Barren, Clinton and Monroe Counties, Kentucky, (March 16)‡	1.50
Oil in lines of Stoll Oil Refining Co. in Oil City, Ky. (Oct. 1, 1928)§	1.76
Oil Springs (Canada)¶	2.07
Petrolia (Canada)¶	2.00

*Posted by Ohio Oil Co.
†Posted by Sun Oil Co.
‡Posted by Paragon Development Co.
§Posted by Stoll Oil Refining Co.
¶Posted by Imperial Oil Co., Ltd.

MEXICAN CRUDE

Panuco heavy (f.o.b. Mexican ports)	$1.15

Note—Due to the fact that the exportation of Tuxpan light crude has become a negligible factor, prices will no longer be published.

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

SUCTION LIFT OF PUMP IS LIMITED

I am told that a suction pump will not lift over 20 feet and would like to know what is the reason for this?—L. C. L.

There are several factors which have to do with the suction lift that may be attained under average conditions; the most important of these include the temperature of the liquid, friction of the liquid through the pipes and fittings, degree to which leakage is reduced, and the pressure of the atmosphere.

The famous Torricelli experiment demonstrated that at the sea level, where the pressure of the atmosphere is equivalent to 14.7 pounds to the square inch, that a column of water 33.83 feet high, at a temperature close to the freezing point, will be supported by the atmospheric pressure. This experiment was made in 1643 for the purpose of determining the cause of the failure of the pumps on the estate of the Duke of Tuscany to lift water more than 32 feet. It was not known then that the suction action of a pump is the result of the atmospheric pressure forcing the water into the cylinder because of the formation of a partial vacuum. The liquid piston reduces the pressure in the cylinder below that of the atmosphere.

The pressure of the atmosphere varies with altitude so suction pumps will not do the same work in the mountains that they will do at the sea level. The suction is also influenced by temperature; the lift decreasing with elevation of temperature. Water, or any liquid, will form a vapor at lower temperatures than normal when the pressure is reduced. If a hot liquid is to be pumped there may be enough reduction of the pressure to cause the formation of a sufficient quantity of vapor to break the liquid column, or as it is commonly called, break the suction.

Water may be lifted by a suction pump at the sea level 22 feet when the temperature is 60 degrees Fahrenheit, but cannot be lifted when the temperature is raised to 160 degrees Fahrenheit. At an elevation of 10,000 feet, and the same temperature of 60 degrees, the maximum lift is reduced to 11 feet.

While water may be lifted with a suction pump more than 20 feet under favorable conditions, it has been found that around 20 feet is the economic limit. It is good practice whenever possible to give a head at the suction end.

SODIUM SALTS AND THEIR COMMON NAMES

What is the common name for trisodium? I frequently see this in chemical magazines. I did take this to mean soda ash but it now appears I am wrong.—W. E. G.

The salts of sodium are more numerous than of any other element used in every day life and the industries. Mistakes are often made because of the quite common tendency to shorten the chemical name and even to substitute another word. The same word may have a different meaning according to the particular industry or circumstances under which the salt is used. For example, soda means sodium bicarbonate in the kitchen and to a large extent in medicine; when used in connection with the treating of oils it usually means sodium hydroxide; in some sulphuric acid plants it means sodium sulphate; the laundry operator uses the word to mean sodium carbonate, and many other illustrations could be given.

Under some conditions certain chemical compounds act to precipitate incrusting compounds from water which is used in making steam so that a hard scale is not formed in the boiler, but a soft mud-like deposit is produced which may be blown off from time to time. Sodium phosphate is a sodium salt which may be used with some water for this purpose.

There are three salts of sodium with phosphoric acid and these contain one, two, and three atoms of sodium. The most common of these is the disodium phosphate, Na_2HPO_4. The normal phosphate of sodium is Na_3PO_4 and is often called trisodium phosphate. The prefix tri indicates three atoms or equivalents.

Soda ash is a common name for sodium carbonate. It may be that the reference you have in mind was intended to indicate the trisodium phosphate.

SELECTIVE ACTION OF FULLERS EARTHS

We have been testing out a new shipment of fullers earth, that is from another deposit than our regular supply, which does not filter lubricating oil to anything lighter than a two color under any conditions. We always get better than one color for a small part of the oil through our stock clay. What we want to ask is this to be explained on the capacity of the clay or can there be some soluble impurity present?—T. E. P.

It is not likely that there would be any soluble impurity in a freshly burned fullers earth which would tend to color a lubricating oil during the filtering operation. Probably this new earth has a selective action so that its capacity for the removal of color is practically fixed at two color. You will find this subject fully explained in The Oil and Gas Journal, June 28, 1928, page 138, Nature of Petroleum Filtering Earths, by P. G. Nutting. The material below is from this article.

In a hydrosilicon molecule, silicon (Si) atoms are usually not directly attached to each other but with an oxygen atom intervening. In the hydrocarbons, carbon is bonded directly with carbon without intervening oxygen. In the structure of the organic silicates a mixture of the two habits prevails. Triethylsilicol is considered $(C_2H_5)_3$ SiOH, the hydrogen is bonded through 0, the ethyl radicals are not. In C_2H_5Si $(OC_2H_5)_3$, three of the ethyls are bonded through 0 while one is not. A partly stripped (of H_2O) hydrous silicate, as indicated above, has open bonds partly from Si and partly from 0 atoms, hence might well be selective toward alkyl radicals of various kinds.

This selective action may account for the varied action of different filters toward oils. Many filter to water white, some filter to an amber color, some (slightly alkaline or moist) filter to a canary yellow. Some natural earths are best on mineral oils, others on vegetable oils. Some will even render fish oils tasteless and odorless. Fats and vegetable oils containing oxygen would be expected to require a different filter from petroleum containing little or none. Using very dilute solutions, the writer has prepared silica gels (also those of alumina and ferric oxide) so powerful as to break up paraffin hydrocarbons, even paraffin itself and very stable oils of the nujol type.

A spent fullers earth cannot be washed clean by even the most powerful solvents (such as tetrachlorethane) or detergents. Even a boiling sodium carbonate solution fails to lift the film coating the grains. Burning at 800 degrees Centigrade in air simply carbonizes it though some earths may be used four or five times by burning off. Burning in pure oxygen removes most of it. This behavior indicates the formation of some compounds much more stable than any simple hydrocarbon.

A good filter may be flushed with even a heavy clear oil and this afterward driven out by a black crude. The filtering action is not impaired. A filter with all its —OH radicals in place (i.e. with no open bonds) would be expected to filter out only basic radicals stronger than OH. This appears to be substantiated by experiment. An undesiccated filter takes out the black and dark brown nearcarbons but passes the lighter yellow and orange colored oils.

VISCOSITY ABSOLUTE AND SAYBOLT

I should like to find just what the absolute viscosity of an oil is and how it may be figured from the Saybolt viscosity if possible?—J. T. H.

Absolute viscosity is that force which will move one square centimeter of plane surface at the rate of one centimeter per second as compared to another plane surface from which it is separated by a layer of the liquid one centimeter thick. It is usually expressed in poises, the poise being equal to one dyne second per square centimeter. This may be expressed absolute viscosity $= \frac{\text{Force} \times \text{Film thickness}}{\text{Area} \times \text{Velocity}}$

Water at 68 degrees Fahrenheit has an absolute viscosity of almost exactly 0.01 poise.

The force available for forcing an oil through the Saybolt tube is gravity, and that of preventing the flow is the internal resistance or viscosity of the oil which is expressed in seconds. The time required for a fixed quantity of oil to flow through depends upon the density of the oil and its viscosity. The Saybolt viscosimeter measures a unit which is equivalent to the absolute viscosity divided by the density; this is the kinematic viscosity. Absolute viscosity may be calculated from the kinematic viscosity by multiplying by the specific gravity of the oil at the temperature at which the viscosity is determined. When the Saybolt viscosities are above 200 seconds the kinematic viscosity in centipoises is approximately one-fifth of the Saybolt viscosity; that is, a 200 viscosity Saybolt is equivalent to about 40 centipoises.

The following is from a discussion of this subject by Gruse—Petroleum and Its Products, pages 69 and 70.

"A chart permitting conversion of readings from the scale of one instrument to another is given by Herschel. See J. Soc. Auto. Eng. Vol. 10, page 32, 1922. Devised by MacCoull, Lubrication, May, 1921. It should be kept in mind, also, that the scales of the commercial instruments refer to time of efflux, and bear no simple relation to absolute viscosity. The Engler, Redwood and Saybolt viscosimeters are such that their readings may be converted into poises by use of the approximate equation: Kinematic viscosity $= \frac{\text{absolute viscosity}}{\text{density}} = At - \frac{B}{t}$ where A and B are instrumental constants. Values of these constants for the instruments mentioned are given by Herschel. For the standard Saybolt instruments they are A=0.002200. B=1.800.

It may be mentioned that an oil of 10 centipoises kinematic viscosity has a viscosity of 60 Saybolt, 54 seconds Redwood and 95 seconds Engler. An oil of 100 centipoises give 540 Saybolt, 440 Redwood and 700 Engler."

VACUUM DISTILLATION TEMPERATURES

Is 600 degrees the highest temperature used to distill lubricating oil overhead with the use of vacuum? At what temperature will oil start to crack with the use of vacuum? Is the oil distilled over the same as under atmospheric pressure and then redistilled to the required specifications? What will be the average difference in the boiling point under vacuum compared to that under atmospheric pressure?—H. C. C.

A liquid begins to boil, that is change into vapor, when the pressure of its vapor equals that of the surrounding atmosphere. When the pressure above a liquid is reduced the boiling point will be lowered. This is the reason for the process of distilling oils under vacuum. Cracking conditions are opposed to those applied under the vacuum processes. Decomposition is to be avoided in the latter. There are four essential conditions for cracking—a suitable oil, pressure, time and temperature. Two of the factors are lacking in the vacuum distillation; that is the high temperature and the pressure.

The rate at which an oil is passed through the heating zone will have much to do with the temperature to which the oil may be heated, and the heating may vary with different stocks. Some operators use temperatures above 600 degrees Fahrenheit.

The recent developments of vacuum distillation appear to be applied to the manufacture of lubricating oils. Steam is introduced to prevent overheating, that is cracking, and to conserve the desired lubricating characteristics. In one process the rate of circulation is reported to be 1.5 meters per second. At this high velocity it is said there is no separation of coke or any other evidence of cracking.

There are three types of units. The shell still adequately braced to prevent collapse because of atmospheric pressure; the tube still; and a combination of a tube still and shell still. The primary products are obtained as overhead distillates, which may be dewaxed, filtered and rerun to special specifications.

An oil boiling at 400 degrees under atmospheric pressure will boil at 300 degrees at 100 mm. pressure and at 255 degrees at 10 mm. pressure. Krafft has determined the following values for n-heptadecane under the pressures indicated.

Pressure mercury—	Boiling point
Normal (760 mm.)	587°F.
100 mm.	423
50 mm.	394
30 mm.	370
20 mm.	350
10 mm.	322
Highest vacuum	178

Oil Securities Show General Advance

Buying Was Practically Universal and Followed Period of Profit Taking Which Ushered Out the Old Year

By Special Correspondent

The oils experienced a general advance this week, when almost without exception they showed exceptional strength. The buying was general, and followed the profit-taking which was reported to have ushered out the old year.

Prairie Pipe Line

The stockholders of the Prairie Pipe Line Co., January 4, 1929, ordered the increase in the capital stock of the company from $81,000,000 to $101,250,000; reduction in the par value of the stock from $100 per share to $25 per share; exchange of $100 par value stock for $25 par value stock at the rate of 4 shares of the $25 par value stocks for and in respect to each $100 par value share and the distribution as a stock dividend to stockholders of record at the close of business on January 8, 1929, of one share of the $25 par value stock for and in respect to each share of $100 par value stock. The $100 par value stock to be surrendered up and cancelled. The books of the company will be open for transfers at once so that all stockholders may have their stock ownership registered by the close of business of January 8, either at the office of the company at Independence, Kans., or at the office of its transfer agent, the Equitable Trust Co. of New York, 11 Broad Street, New York City.

Standard Oil (California)

K. R. Kingsbury, president of Standard Oil Co. of California, issued a statement declaring that the recent decision of the United States Supreme Court with respect to Section 36, in Elk Hills Naval Oil Reserve, California, does not deprive the company of its right or title to the land. The decision, he said, determines nothing with respect to merits of the title but leaves the company's title in the same situation in which it was at the time of the hearing before the Secretary of the Interior in 1921.

Beacon Oil

Beacon Oil Co. declared regular quarterly dividend of $1.87½ on preferred, payable February 15 to stock of record February 1.

Pan American Western

Pan American Western Petroleum Co. and subsidiaries report for quarter ended September 30, 1928, net profit of $100,825 after depreciation, depletion, interest, Federal taxes, etc., equivalent to 20 cents a share earned on combined 100,010 no-par shares of Class A stock and 400,000 shares no-par Class B stock. This compares with $273,942 or 54 cents a share on combined stocks in third quarter of 1927.

For nine months ended September 30, 1928, net profit was $38,832 after above charges, equal to 7 cents a share on combined stocks, against $437,756 or 87 cents a share on combined stocks in first nine months of previous year.

Intangible drilling expenses for nine months ended September 30 amounting to $1,399,770 have been charged to surplus account in conformity with company's past practice.

Columbia Gas & Electric

Directors of Columbia Gas & Electric Corp. have recommended that at the next annual meeting of shareholders to be held April 4 the outstanding common stock of the corporation be split 2½ shares for one. This will require an amendment to charter increasing the authorized amount of common stock correspondingly.

The number of directors was increased to 19 with the election of Harry J. Crawford, Charles A. Munroe, Thomas W. Phillips, Jr., and William C. Potter.

The management believes that a division of the present shares on the basis planned will tend to a wider distribution of the stock through placing the market value of the shares better within the reach of the small investor. There are now outstanding 3,372,695 common shares, which after the split up will be increased to 8,431,738 shares.

The regular quarterly dividends of $1.25 on the common and $1.50 on preferred were declared, both payable February 15 to stock of record January 19.

Royal Dutch

Interim dividend of 10 per cent for 1928, recently declared by Royal Dutch Co., is payable January 10. Amount payable to New York shares and date payable will be announced by Equitable Trust Co. at a later date.

Columbian Carbon

Columbian Carbon Co. declared extra dividend of 25 cents and regular quarterly dividend of $1, both payable February 1 to stock of record January 17.

Atlantic Refining

Atlantic Refining Co. declared the regular quarterly dividend of $1.75 on the preferred, payable February 1 to stock of record January 16.

Salt Creek Producers

Salt Creek Producers Association declared the regular quarterly dividend of 75 cents, payable February 1 to stock of record January 15.

Mid-Continent Petroleum

Under terms of the offer of 447,912 additional shares of no par value common stock, Mid-Continent Petroleum Corp. preferred shareholders of record January 10, 1929, will be entitled to subscribe to new common stock in the ratio of four shares of common for each 10 shares of preferred held. Under the terms of the offer common stockholders are entitled to subscribe for three shares for each 10 held. Subscription privilege has been allocated as between the preferred and common stocks on the basis of the number of shares of common into which the preferred is convertible. Subscription privilege expires January 30, by which date payment for new stock must be made.

Committee on securities of New York Stock Exchange rules that transactions in Mid-Continent Petroleum Corp. common and preferred stock shall be ex rights January 10.

Richfield Oil

James A. Talbot, president of Richfield Oil Co. of California, stated there is no plan under consideration by directors for issuing stock rights either now or in the immediate future, nor is any plan under present consideration to raise the dividend rate.

Venezuelan Oil Concessions

Directors of Venezuelan Oil Concessions, Ltd., state arbitration award, covering contract under which the company's crude production is delivered to Asiatic Petroleum Co., Ltd., and Mexican Eagle Oil Co., Ltd., Royal Dutch subsidiaries, has been accepted by both parties and is now effective.

Terms of the award were not disclosed, but it was stated that the former basis had been discarded in favor of a formula based on world market prices for products obtainable from company's crude output, which the board considers satisfactory. Burlington Investment Co., a member of the Royal Dutch group, secured control of Venezuelan Oil Concessions, Ltd., in 1921.

TULSA GEOLOGISTS ELECT FRANK HERALD PRESIDENT

Frank A. Herald, consulting geologist of Tulsa, was elected president of the Tulsa Geological Society succeeding M. J. Foley, chief geologist of the Mid-Kansas Oil & Gas Co., at a meeting held on Monday of this week.

A. I. Levorsen, chief geologist of the Independent Oil & Gas Co., and W. R. Hamilton, consulting geologist, were both elected vice presidents of the society. W. W. Keeler, geologist for the Minnehoma Oil Co., was elected secretary-treasurer.

The above officers constitute the council of governors of the society together with D. B. Snow, chief geologist of the Barnsdall Oil Co., A. W. Lauer, division geologist of The Texas Company, and Russell S. Tarr, consulting geologist.

TWENTY REPRESENTATIVE STOCKS

The Oil and Gas Journal weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange and New York Curb was as follows:

Jan. 7	84.10	Nov. 19	80.55	Sept. 29	67.93
Dec. 31	80.19	Nov. 12	78.27	Sept. 22	67.12
Dec. 24	78.43	Nov. 5	75.99	Sept. 15	67.06
Dec. 17	78.43	Oct. 29	75.02	Sept. 8	66.76
Dec. 10	77.66	Oct. 20	70.05	Sept. 1	65.86
Dec. 3	83.67	Oct. 13	68.03	Aug. 27	65.70
Nov. 26	83.56	Oct. 6	57.65	Aug. 20	65.42

INDEPENDENT OILS ON THE NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Kennedy Building, Tulsa, Okla. Members New York Curb Market

1926 High	1926 Low	1927 High	1927 Low	1928 High	1928 Low	Par Value	Stocks	For week ended January 3 Sales	Open	High	Low	Last	Change
$6 75	.45	2 1/16	.55	1½	.60	$5	Amer. Con. Oilfields	13,300		67	60	60	
..	..	7½	2¾	9½	3⅛	N.P.	Amer. Maracaibo	15,600	8⅜	8¾	6⅛	7⅝	— ⅝
..	..	2¾	1	4½	2¼	$10	Argo Oil	900	3⅝	3⅝	3⅜	3½	— ⅛
85¼	60	40	20½	55	32⅞	N.P.	British American	No sales.					
28⅜	9¼	28¼	15½	4½	3⅞	25c	Carib. Syndicate (new)*	3,500	3⅞	4¼	3¾	4⅛	+ ⅛
..	..	58¾	40¼	90⅞	54	$20	Cities Service	94,600	88¼	94⅜	88¼	93¼	+ 4⅜
..	..	95⅜	87	103½	94½	100	Cities Service, pfd.	2,100	97⅝	98½	97⅜	98½	+ ⅜
..	..	8⅞	7⅜	9⅝	8⅞	10	Cities Service, pfd. B	200	9⅛	9⅛	9⅛	9⅛	
3½	1¾	3⅞	1⅛	2¼	1 1/16	1	Colombia Syndicate	12,500	1 1/16	1¼	1 1/16	1¼	+ 1/16
..	..	9¾	6⅜	8⅛	6½	10	Consolidated Royal	4,000	8⅞	8⅞	8	8	+ 1
16	10	14⅞	9½	19⅜	9½	N.P.	Creole Syndicate	54,200	9¾	11¾	9¾	11⅝	+ 1⅝
..	..	3	.50	2¾	.76	N.P.	Crown Central	1,100	1½	1⅝	1½	1⅝	+ ⅛
7⅞	6¾	12	4	31	8⅛	N.P.	Darby Petroleum	13,000	24⅜	25⅝	24⅜	25½	+ 1
..	..	2½	74	2¼	1	N.P.	Derby Oil & Refining	200	2¼	2¼	2	2	
..	..	16¾	4	21	7½	N.P.	Derby Oil & Refining, pfd.	No sales.					
..	..	2	.40	.53	.15	N.P.	Gilliland ctfs.	No sales.					
98	92	118	86¼	165	101⅛	$25	Gulf Oil Corp.	12,400	147⅜	151¾	147¼	148½	+ 2¾
$3 00	.83	2½	.80	2¾	1	5	International Pet.	15,800	2⅛	2⅜	2	2¼	+ ⅛
..	..	2¼	1⅛	3	1¼	N.P.	Kirby Petroleum	21,000	1⅝	3⅜	1⅞	2⅞	+ 1
12¼	5¾	10⅞	5⅛	9⅜	5⅛	25	Leonard Oil & Dev.	1,900	5¼	5¼	5⅛	5¼	+ ⅛
27	20	27½	20	40½	20	N.P.	Lion Oil & Refining	1,300	32⅛	33	32⅛	33	+ ⅞
46	30	59⅜	37	69⅛	49	$25	Lone Star Gas	100	68⅛	68⅛	68⅛	68⅛	+ ⅜
2⅞	1	2⅞	.80	1⅞	.50	1	Magdalena Syndicate	7,300	60	64	56	64	+ 4
34	12½	52	12	45	32	N.P.	Margay Oil	2,000	32⅛	38¼	32⅛	36⅞	+ 4⅞
8	5½	12⅛	5	8	3	N.P.	Mexico-Ohio Oil	200	4	4	4	4	
1¾	1⅛	1½	1	1½	.81	$1	Mountain & Gulf	2,400	1¼	1½	1¼	1⅜	
26	23	29¼	22¾	28⅝	20¼	10	Mountain Producers	5,300	20¾	21	20½	20⅞	+ ⅜
6⅝	5	5⅞	4⅝	5⅝	4¼	5	New Bradford	1,300	5¼	5¼	4⅞	5	
..	..	16	9¼	11⅜	7⅛	1	New Mex. & Ariz.	400	7⅜	7½	7½	7½	+ ⅛
..	..	12¾	9½	13¼	10⅛	N.P.	North Central Texas	700	8⅞	9	8½	8⅝	
10⅛	5⅞	9⅜	3¼	6	2¼	N.P.	Pandem	4,500	2½	2⅝	2¼	2⅝	+ ⅛
12¼	11¾	12⅛	7	15⅝	8½	N.P.	Pantepec Oil	6,200	10	10¾	10	10	— ¼
22¾	12	13½	5⅛	7¾	5⅛	N.P.	Pennok Oil	1,200	6¼	6⅝	6⅛	6⅝	— ¼
17	8½	24⅜	7	17¾	9	25	Red Bank Oil	No sales	10⅜				
30¼	12	15½	3½	12⅞	4⅛	N.P.	Reiter-Foster	5,700	6⅞	7⅞	6¾	7½	+ 1⅜
7	4½	7	4½	10⅜	4⅝	N.P.	Ryan Consolidated	10,800	....	10⅜	8¾	8¾	— ⅜
10	7⅛	8	5¼	7¼	5¾	$10	Salt Creek Cons.	1,200	5¾	5⅞	5½	5⅝	
35	24⅛	35½	27¼	35	23¼	10	Salt Creek Prod.	12,400	25¼	26⅞	24¾	24	— 1⅞
6⅞	1¼	7	1¼	3½	1	5	Savoy Oil	No sales.					
27	7⅝	26½	17	22⅞	13	10	Tidal Osage	900	14⅞	14⅞	14½	14¾	— ⅛
25¾	7⅝	23¾	15	21¼	13⅛	10	Tidal Osage, nonvoting	100	13½	13½	13½	13½	+ ⅛
92	63½	92	63½	91⅞	75	100	Transcontinental, pfd.	100	89	89	89	89	
8	4½	7⅜	4¼	8¼	4⅞	5	Venezuelan Petrol	23,900	5⅝	8⅞	5½	6⅛	+ ½
8⅛	5½	8	4⅜	8¼	4⅞	$1	Woodley Petroleum	1,100	6½	6¾	6½	6½	— ⅛
6½	6	6	1¾	8⅜	2⅛	25	Y Oil & Gas (new)	100	4⅜	4⅜	4⅜	4⅜	+ ⅛

*Ex-dividend.

TRANSACTIONS IN OIL SHARES ON NEW YORK STOCK EXCHANGE

Quotations Compiled by Francis, Bro. & Co., Members of New York Stock Exchange, Kennedy Building, Tulsa, Okla.

1926 High	1926 Low	1927 High	1927 Low	1928 High	1928 Low	Listed capital	Par value	Stocks—	Div. rate	Last paid	For week ended January 5 Sales	Open	High	Low	Last	Change
32⅞	24¼	37⅝	27⅝	43⅞	27⅛	(sh) 922,075	N.P.	Amerada Corp.	50cQ	Oct. 31, 28	43,700	38½	42⅝	38½	40¾	+ 3
74	39⅞	82½	35⅛	85	51¼	(sh) 209,180	N.P.	American Republics Corp.	.....	.....	7,500	63	64¾	60¼	61⅞	— ½
60	44⅛	50¼	35	53⅜	37½	$57,260,300	$25	Associated Oil	50cQ	Dec. 31, 28	14,000	43¾	47½	43⅜	47	+ 3¼
128⅜	97	131⅝	104	59½	50¾	50,000,000	25	Atlantic Refining	25cQ	Dec. 15, 28	208,400	64¾	68	63⅛	64	+ 1
33½	23½	35½	20¾	53	20	35,194,000	25	Barnsdall Corp.	50cQ	Feb. 5, 29	182,600	40½	46⅞	40½	45⅛	+ 5
94¼	50	96¾	65	94⅞	68	20,785,400	100	General Asphalt	.....	.....	11,800	74½	78	74	75⅝	+ 1⅝
72	50¼	175¾	60⅛	167	79	25,000,000	100	Houston Oil	.....	.....	16,300	98¾	107	98	100	+ 4½
34	19⅝	32¾	17⅝	37½	21¾	(sh) 959,457	N.P.	Independent Oil & Gas	50cQ	Jan. 31, 29	24,800	35⅛	35⅛	33⅜	33⅜	— 1¾
12¾	7½	12⅛	7⅝	39⅝	9	8,203,080	$10	Indian Refining	.....	May 31, 24	36,300	29½	33⅞	29⅛	30½	+ ⅞
25¾	16½	37¾	20½	39⅛	27⅜	(sh) 3,992,122	N.P.	Lago Oil & Transport	.....	May 1, 27	4,200	30½	33	30½	32	+ 1½
19⅞	12	18⅛	10	19¾	9¾	(sh) 1,237,078	N.P.	Louisiana Oil Refining	.....	.....	89,700	14⅜	17⅝	14⅛	17⅜	+ 3⅜
28	16½	22¾	12	25½	12½	(sh) 330,000	N.P.	Maracaibo Oil	.....	.....	2,100	16½	17¼	16⅛	17	+ ½
63⅝	49¼	58½	31	49¾	33	(sh) 2,316,692	N.P.	Marland Oil Co.	.....	Mar. 31, 27	147,900	41⅛	47⅛	41⅛	45	+ 3⅞
13⅜	6	9¼	3	73	4⅝	(sh) 945,939	N.P.	Mexican Seaboard	.....	Dec. 15, 20	141,500	63⅞	69⅜	62⅛	65	+ 2
37	20½	39⅜	25½	44½	25⅛	(sh) 1,357,461	N.P.	Mid-Continent Petroleum	50cQ	Feb. 15, 29	46,500	37½	39⅞	37½	38½	+ 1¼
104¼	90	105	97	120¼	103¼	$6,718,000	$100	Mid-Continent Petroleum pfd.	$1.75Q	Sept. 1, 28	600	120½	121	120⅜	121	+ ⅞
2½	½	3¾	1⅝	7⅜	2⅜	24,298,850	10	Middle States	.....	July 1, 23	28,500	4½	5⅛	4¼	4⅞	+ ⅝
76½	56⅛	65⅞	40⅛	55½	38¼	$48,807,400	$50	Pan American P & T.	.....	Oct. 20, 27	3,200	46¼	50	46⅛	49½	+ 3½
78⅝	56⅞	66⅜	40¼	58⅞	37¾	121,097,900	50	Pan American P. & T. B	.....	Nov. 15, 24	45,200	48¼	51⅞	47½	49⅞	+ ⅝
46	30	37⅞	16¾	28⅜	15½	(sh) 400,000	N.P.	Pan American Western B	.....	Jan. 30, 27	500	17½	17½	17½	17½	+ ⅞
32	4½	18⅞	8	21¾	11½	(sh) 198,770	N.P.	Panhandle P. & R.	.....	.....	1,900	12¼	15¼	12¼	13⅜	+ 1⅜
99⅜	51	83	54	106¼	70	$2,935,200	$100	Panhandle P. & R. pfd.	.....	July 2, 23	100	80	80	80	80	...
57⅜	40	60¼	36¼	53⅞	35¼	(sh) 2,406,796	N.P.	Phillips Petroleum	37½cQ	Jan. 2, 29	28,600	44¼	47	44	45⅜	+ 1¼
....	....	1⅛	½	5¼	½	$29,622,925	$25	Pierce Oil Corp.	.....	.....	7,200	2½	2¾	2½	2¾	+ ⅛
7	2¼	5½	2½	6⅝	3½	(sh) 2,500,000	N.P.	Pierce Petroleum	.....	.....	7,300	5¼	5½	5¼	5¼	...
60¼	48	55½	45⅝	68	46	60,000,000	25	Prairie Oil & Gas Co.	.....	Aug. 31, 27	23,400	61⅞	62½	60¼	61¼	— ⅝
20⅜	11	33⅞	16¼	28⅞	16	$37,450,850	$50	Producers & Refiners	.....	Sept. 15, 23	4,500	22⅞	25⅞	22⅞	24	+ 2
41⅜	30⅜	50	36⅞	49⅝	41	2,845,350	50	Producers & Refiners pfd.	.....	May 1, 25	13,000	43	43	43	43	...
31	25¼	33½	25	31¼	19	75,959,350	25	Pure Oil Co.	25cQ	Dec. 1, 28	26,100	26⅞	28½	26⅜	27¼	+ ¾
27½	22	28⅝	25⅜	56	23½	47,025,000	$25	Richfield Oil	.....	Nov. 15, 28	56,200	46¼	49⅝	46⅛	47¾	...
57⅜	47⅜	54½	44¼	63⅜	44⅝	(sh) 611,303	13.40	Royal Dutch, N. Y. shares	50cQ	Jan. 10, 29	4,700	53¾	55¾	53½	55¾	...
48⅝	40½	47⅞	41⅜	57½	40⅝	(sh)£30,000,000	£1	Shell Transport & T.	$1.455	July 23, 28	No sales					
31	24	31¾	24⅝	39¼	23¼	(sh)20,000,000	N.P.	Shell Union Oil	35cQ	Dec. 31, 28	88,500	28	30¼	27¾	29	+ 1
28⅝	15⅛	26⅜	14¼	27¼	18⅛	$8,357,000	$10	Simms Petroleum	10cQ	Dec. 15, 28	26,900	23⅜	23⅞	23	23¼	+ ⅛
24⅞	16¾	22⅜	15	46¼	17⅜	(sh) 4,501,915	N.P.	Sinclair Consolidated	.....	.....	293,700	41⅝	45	41½	42⅛	+ ⅛
99½	90	104½	97	110	102½	$16,604,600	$100	Sinclair Consolidated pfd.	$2Q	Nov. 15, 28	200	109	109¾	109	109¾	+ ¾
37⅛	26⅝	37⅜	24⅛	42⅝	25	27,396,590	25	Skelly Oil Co.	50cQ	Dec. 15, 28	19,100	35¼	37⅛	35	36⅝	+ 1½
63⅝	51½	60¾	50⅝	80	53	(sh)12,594,098	N.P.	Standard Oil of California	65½cQ	Dec. 15, 28	83,200	71⅜	73½	70⅛	72⅛	+ ⅝
46⅝	37½	41⅜	35⅛	59⅜	37¾	$611,120,700	$25	Standard Oil of New Jersey	‡25cQ	Dec. 15, 28	101,200	54⅜	55½	53¼	54⅛	...
47¼	30⅜	34⅛	29¾	44¼	28¾	427,973,275	25	Standard Oil of New York	40cQ	Dec. 15, 28	389,900	44½	43⅜	42¾	43¼	— 1¼
41⅝	30⅛	34⅞	30	77	31½	(sh) 1,206,073	N.P.	Sun Oil	25cQ	Dec. 15, 28	1,000	64⅛	68	64	67½	+ 3½
5¼	1	6½	3⅛	14¼	2½	(sh) 1,267,000	N.P.	Superior Oil Corp.	....	Dec. 20, 20	65,100	9⅞	12	9⅜	10⅞	+ 1⅜
58	48	58	45	74¾	50	$211,076,650	$25	The Texas Corporation	75cQ	Jan. 1, 29	49,900	66⅛	68	66¼	66⅜	...
19½	12	18⅞	12	26⅝	12½	8,380,340	10	Texas Pacific Coal & Oil	.....	Jan. 3, 28	34,500	18⅜	19⅜	17⅜	18⅛	+ ½
39¼	27	29¼	19	39	19⅝	(sh) 2,168,410	N.P.	Tide Water Oil Co.	20cQ	Dec. 15, 28	3,800	37⅛	37⅝	36½	36½	— ⅝
103	87¼	90⅛	85	100⅛	86	$20,705,200	$100	Tide Water Oil Co. 5% pfd.	$1 25Q	Nov. 15, 28	1,200	96	97	96	97	+ ½
27	20⅞	19⅛	15⅜	25	14¾	(sh) 4,796,158	N.P.	Tide Water Associated	.....	Aug. 1, 27	34,700	20⅞	22	20⅞	21	+ ¼
5½	3	10⅜	3¾	14¾	7¼	(sh) 3,742,029	N.P.	Transcontinental Oil	.....	.....	65,300	13	11⅝	....	....	...
58⅜	37¼	56½	39⅝	58	42¾	$94,798,100	$25	Union Oil of California	50cQ	Nov. 10, 28	8,100	51¼	51⅞	50	51	+ ⅞
120⅜	84¼	127½	94	128⅛	116¾	31,061,200	100	Union Tank Car Co.	$1.25Q	Dec. 1, 28						
30⅛	23½	34½	24½	44⅞	26	(sh) 356,000	N.P.	Warner Quinlan	50cQ	Jan. 2, 29	30,700	39⅛	42⅞	38¾	40	+ 1
29¾	25⅛	27½	20	38	20⅛	(sh) 490,000	N.P.	White Eagle Oil & Refining	50cQ	Jan. 20, 29	7,300	35⅝	36½	35⅛	35¾	— ¼
								Wilcox Oil & Gas	.....		600	....	20½	19	19	— 1½

*Odd lots. ‡Also extras.

STANDARD OIL STOCKS ON NEW YORK CURB

21	16	21⅝	17⅞	22⅜	16⅜	£4,126,460	£1	Anglo-American Oil		June 6, 28	5,700	15¼	16¾	15	15¼	— ¼
....	....	3¾	¾	5	1¼	(sh) 500,000	N.P.	Atlantic Lobos	.....	.....	400	2½	2½	2¼	2½	— ¼
76	65	69	50	56	45½	1,000,000	25	Borne Scrymser	$18 A.	Oct. 15, 28	50	46	46	46	46	...
59½	42	60	45	76	53	10,000,000	50	Buckeye Pipe Line	$1Q	Dec. 15, 28	200	66½	67	66½	67	+ ¾
82½	65	126	76½	161	117¼	3,000,000	25	Chesebrough Mfg.	$1Q	Dec. 28, 28	200	144	142½	142	142	...
25⅞	17½	22⅝	16¼	23	16	36,057,840	10	Continental Oil	.....	Dec. 15, 27	35,200	19⅜	20	19⅛	19¾	+ ½
137	102	137	89	114	67	1,500,000	50	Cumberland Pipe Line	$1A	Dec. 15, 28	No sales.					
63¾	43	68½	47	88	64⅛	5,000,000	100	Eureka Pipe Line	$1Q	Nov. 1, 28	100	65½	65½	65½	65½	— 1⅞
32½	9⅞	13½	3½	12	5	16,000,000	100	Galena Signal Oil	.....	June 30, 25	100	6	6	6	6	...
68⅛	52	68½	54	114¼	60	73,117,577	25	Humble Oil & Refining	30cQ*	Jan. 1, 29	19,400	100½	106½	100	100⅛	+ ⅜
144½	125½	182	123¾	290½	176½	20,000,000	100	Illinois Pipe Line	10% S.A.	Dec. 15, 28	950	275	295	275	290	+15
....	....	64¾	37¾	104	56¾	(sh) 6,458,267	N.P.	Imperial of Canada	25cQ	Dec. 1, 28	11,500	96¼	103½	97¼	98⅞	+ 2⅞
72½	58	94½	61	92¾	74⅞	$5,000,000	$50	Indiana Pipe Line	$1Q	Feb. 15, 29	700	83	85	83	85	+ 2⅛
35½	28¾	39	28¼	55	35	(sh) 7,123,444	N.P.	International Petroleum	25c	Nov. 30, 28	51,900	50¼	57½	49⅝	55	+ 5
20¾	12½	24	13½	32⅜	20⅛	$6,363,350	12.50	National Transit Co.	25c	Dec. 15, 28	1,200	21⅝	23	22⅛	22⅝	+ ⅝
51½	27¼	44½	31¼	75	37½	5,000,000	100	New York Transit	.....	July 15, 26	400	69¾	71	69¾	71	...
80½	64	100	70	125	62	2,000,000	50	Northern Pipe Line	$38 A.	Jan. 2, 29	200	62¼	62¼	62	62	...
67⅝	55¾	67⅞	52	83½	58	60,000,000	25	Ohio Oil Co.	50cQ*	Dec. 15, 28	6,100	72⅜	74⅜	72¼	73	+ ⅞
24¾	15	39	12	44	29	10,000,000	25	Penn Mex. Fuel	$1.25	Dec. 15, 28	3,700	36	43⅞	36	39	— 2
137½	122½	190	132	278	172	101,000,000	25	Prairie Pipe Line	$3.50	Oct. 31, 28	3,500	259½	280	259¾	271	...
220	84½	201½	175½	220	167	4,000,000	100	Solar Refining	$5 S.A.	Dec. 20, 28	100	219½	219½	219½	219½	...
74½	61½	27¼	15½	35⅞	12	1,000,000	10	Southern Pipe Line	$2	Dec. 1, 27	200	15	15	15	15	...
50	34½	41½	35	69	36¾	2,000,000	25	South Penn Oil	50cQ	Dec. 31, 28	6,460	66⅞	69⅞	66½	69⅜	+ 3⅜
56	47½	83	55½	100	70	3,500,000	100	Southwest Pa. Pipe Lines	$1Q	Oct. 1, 28	No sales.					
70½	60½	81½	64⅝	95⅞	70⅞	228,415,463	25	Standard Oil of Indiana	62½cQ	Dec. 15, 28	31,900	89⅞	92⅜	89⅝	90	...
38½	16½	20⅞	14⅝	27⅜	15	8,000,000	25	Standard Oil of Kansas	.....	June 16, 24	1,300	21⅜	21⅞	20¾	20¾	— ⅛
134⅜	108	130	111½	179¾	122¼	17,012,559	25	Standard Oil of Kentucky	$1Q	Dec. 31, 28	4,600	163¼	164¼	161	162	— 1¾
51⅜	42	49½	40	54⅝	39⅞	4,559,850	25	Standard Oil of Nebraska	63cQ	Dec. 20, 28	100	48⅞	48⅞	48¾	48¾	+ 1½
372	288	87½	72	134	71	14,000,000	25	Standard Oil of Ohio	62½cQ	Jan. 2, 29	500	119	119¾	118¼	119	+ ¼
21	15	21	14½	26	16	861,000	25	Swan Finch Co.	.....	Nov. 1, 19	No sales.					
109¾	90¼	....	....	109¾	72¼	125,619,000	25	Vacuum Oil	75cQ	Dec. 20, 28	158	109⅞	111	106	106¾	— 3

*Also extras.

E. J. NICKLOS ELECTED MARLAND VICE PRESIDENT

E. J. Nicklos, recently resigned as division manager in charge of Oklahoma, Kansas and Kentucky for The Texas Company, was this week elected vice president and director in charge of the Marland Production Co. Mr. Nicklos has taken up his new duties at Ponca City, and will direct the operations of the Marland Production Co., which is the operating unit for oil production of the Marland Oil Co., the parent company.

E. R. Tucker, former assistant to Mr. Nicklos and office manager of The Texas Company in Tulsa, has resigned effective February 1, and will become associated with the Marland Production Co., at Ponca City, Okla.

OKMULGEE OPERATORS ELECT

W. E. Wood, for many years prominent in oil and gas production in central Oklahoma, and formerly vice president and treasurer of the Kingwood Oil Co. which he helped establish many years ago, was elected president of the Independent Oil Association of Oklahoma, formerly the Okmulgee District Oil and Gas Association, at its ninth annual business meeting held in Okmulgee, Saturday, January 5, 1929.

W. C. Newman and R. D. Pine were elected vice presidents of the association and C. W. Wangerin was made chairman of the finance committee. Charles I. O'Neil, secretary of the association since its organization, was re-elected to office.

HIGH TEMPERATURES AND CORROSIVE OILS

(Continued from Page 120)

tack of the products of combustion in a furnace (particularly of oxygen from the excess of air that is used), and also to the action of corrosive constituents of cracked oil at elevated temperatures. Obviously, calorized tubes can fulfill their intended function only if the tubes are mechanically suited to the service imposed and if the coating persists. The one marked change in the physical properties of steel effected by calorizing is an increase in ductility. Softness of the coating prevents its resisting the cutting action of tube-cleaning appliances. Tubes must have sufficient strength under the conditions of operation to risist swelling and other deformations; calorizing cannot correct this defect of insufficient mechanical strength. Since with uniform carefulness in using standard cleaning tools the removal of the coating is proportional to the number of times of cleaning, calorized tubes makes their best showing when corrosive charging stocks are used. Throughout the initial period during which the coating is intact, corrosion is checked effectively. The attack on unprotected steel tubes proceeds from the beginning. Under such conditions, proper tubes that have been calorized can show a life of four to six times that of plain steel tubes."

An important difference at time of failure between calorized tubes and plain steel tubes has been observed frequently, (here again, only tubes that were originally of proper mechanical strength are considered). The attack on steel tubes is almost uniform throughout the length. When swelling and rupture occur because of reduced strength, the split is extensive. On the other hand, calorized tubes are reduced in wall thickness at areas that have lost the coating. Pitting is almost a universal forerunner of failure when corrosive oils are cracked.

Rupture occurs at the weakest corroded section in the form of a perforation. Adjacent sections are usually strong enough to prevent splitting. Destruction of the coating in the ends of tubes by the tube rollers has been minimized by inserting a short sleeve of sheet chrome steel. These sleeves are allowed to remain in the tubes after rolling.

Double-calorized tubes of adequate mechanical strength have, in our experience, effected economies and have reduced hazards, particularly when corrosive charging stocks are involved.

Chromium Plating

Important improvements have been made in the process of plating with chromium reaction chambers and dephlegmators. The first cost is high at best, but the process is considered economical when corrosive oils are used. Reduction in unit cost is realized when the number of large pieces at one place is large. The equipment necessary for the job is extensive and expensive and becomes reasonable per unit only when the total fixed charges and operating charges can be distributed widely. Plating at a factory where the expenses could be kept at a minimum should reduce the cost of this method.

Heating coils have been plated both externally and internally. The results have been generally disappointing. It should be emphasized in this case also that the coating cannot correct the defects of a steel tube that is mechanically unsuited for the conditions to which the plated tube is subjected. Removal of the coating by cleaning appliances have been experienced frequently. Methods of cleaning that are less injurious to the plated chromium are needed. The development of them should be possible.

CYLINDER STOCKS ARE STRONG IN EAST

(Continued from Page 119)

ucts, which remained held at 17.65 cents for standard white and 18.90 cents for water white. Bulk kerosene was rather quiet at 7⅞ cents for prime white and 8¾ cents for water white, with prices at the Gulf 1 cent lower in each instance.

Export demand for lubs continued a factor this week, but volume of trading was necessarily smaller, owing to the paucity of offerings of the wanted grades for prompt shipment. Most of the inquiry is for cylinder stocks, with a good deal of the buying for the account of British factors.

Paraffin wax was selling in but routine quantities for export shipment, but the market was strongly held on all grades. More inquiries were reaching sellers, and an early improvement in trading was looked for.

Gas and fuel oil continued in but moderate demand for shipment abroad this week.

Interest in petroleum export circles has been centering in the plans for the export oil corporation. It had been expected that announcement of the formal organization of the export group would be made at the start of the new year, but thus far nothing has materialized in that direction. It is indicated, however, that the export group will be incorporated under the provisions of the Webb-Pomerene act shortly, and that at that time full details of the participation by the smaller interests in the petroleum industry will be forthcoming.

Export operators look for increasing competition from Venezuelan productions in their sales abroad this year. Pan American Petroleum & Transport, through Lago, will be a big factor in the situation when its new refinery at Aruba, D.W.I., goes into operation some time during March or April of this year. This refinery will be able to handle 100,000 bbls. of oil daily and will have considerable cracking capacity. While starting up of this refinery will take some of the load of crude off the East Coast market, it will naturally be accompanied by increasing competition on refined products which must be faced by Atlantic Coast refiners and marketers.

Petroleum Exports

The following table shows principal exports of petroleum and refined petroleum products from New York during the past three weeks (all figures in gallons unless otherwise noted):

	Week ended		
	Dec. 29	Dec. 22	Dec. 15
Gasoline	179,300	197,500	1,896,800
Naphtha	449,800	1,600,000	2,430,000
Kerosene	498,600	364,700	760,800
Fuel oil	94,700	260,700	403,800
Lubricating oil	2,710,200	2,429,600	2,766,000
Petroleum (refined)	595,800	554,000	2,169,800
	Pounds		
	Dec. 29	Dec. 22	Dec. 15
Petrolatum	19,600	.....	.....
Paraffin wax	1,039,500	1,434,800	1,393,500
Refined	.....	32,500	2,169,800
Scale	244,300	543,100	431,500
Lub. grease	1,193,700	933,300	1,641,000

Imports

Imports of crude and refined oils at the principal United States ports for the week ended December 29 totaled 1,398,000 bbls., a daily average of 199,714 bbls. compared with 1,786,000 bbls., a daily average of 255,143 bbls. for the week ended December 22, and a daily average of 245,893 bbls. for the four weeks ended December 29.

(Barrels of 42 gallons)

At Atlantic Coast ports—	
Baltimore	185,000
Boston	71,000
New York	776,000
Philadelphia	225,000
Total	1,257,000
Daily average	179,571
At Gulf Coast ports—	
New Orleans and Baton Rouge	141,000
At all United States ports—	
Total	1,398,000
Daily average	199,714
Daily average four weeks	245,893

Included in the week's receipts at New York were the following shipments:

California Oil Receipts

Receipts of California crude and refined oils at Atlantic and Gulf Coast ports for the week ended December 29 totaled 477,000 bbls., a daily average of 68,143 bbls., against 369,000 bbls., a daily average of 52,714 bbls. for the week ended December 22 and a daily average of 57,929 bbls. for the four weeks ended December 29.

	(Bbls. of 42 gals.)
At Atlantic Coast Ports—	
Baltimore	80,000
New York	240,000
Philadelphia	157,000
Total	477,000
Daily average	68,143
Daily average four weeks	57,929

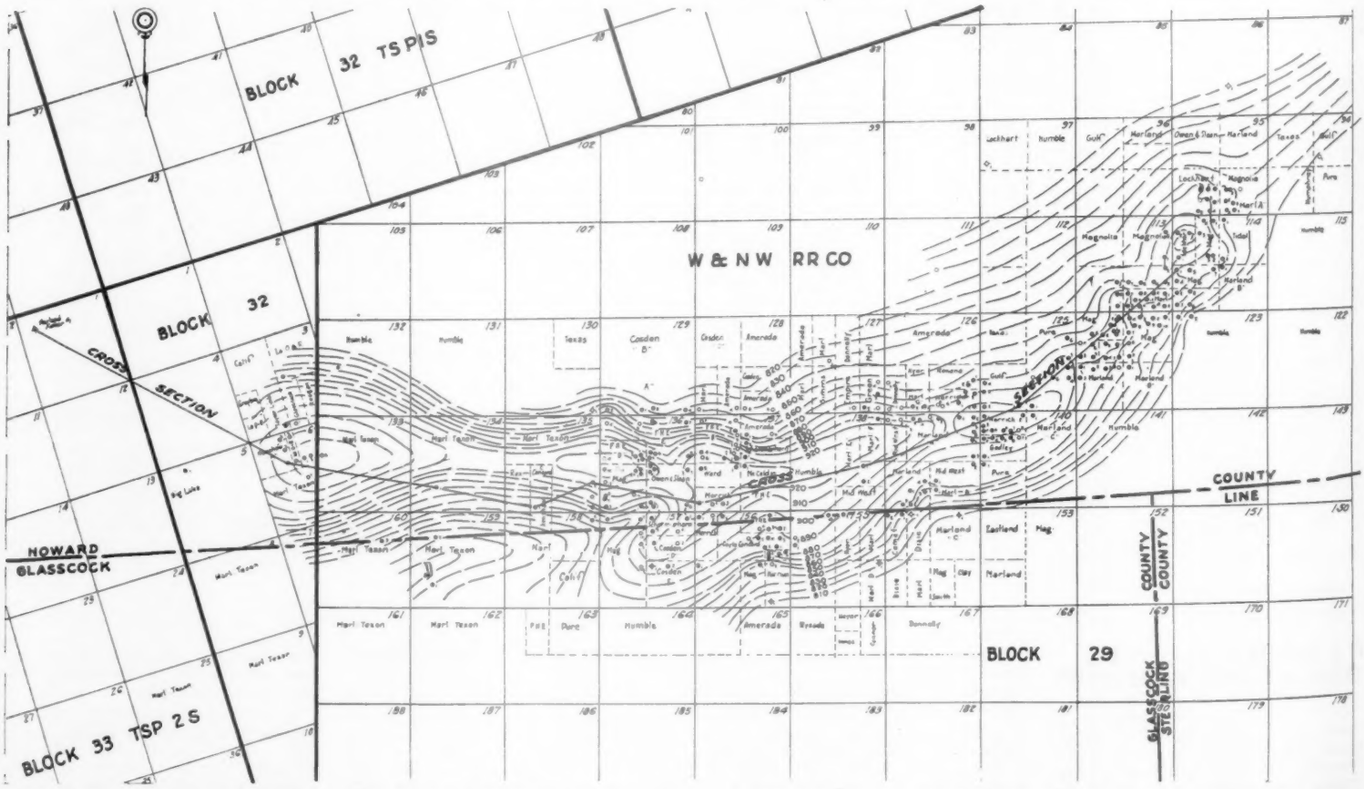
The entire receipts for the week, totaling 477,000 bbls., comprised gasoline shipments.

SOUTHERN HOWARD COUNTY TO BE ACTIVE

(Continued from Page 31)

of Cretaceous and Triassic age. The Cretaceous is represented by the lower part of the Edwards limestone and Trinity sands, ranging in thickness from 0 to 150 feet. The underlying Triassic is approximately 400 feet in thickness. In physical appearance the Triassic closely resembles the underlying red beds of Permian age. For the sake of brevity, a detailed description of the surface formations will be omitted.

Production in the field comes from the Permian. For all practical purposes, it may be grouped on lithological character-



Subsurface map of the Chalk Field, Howard and Glasscock Counties, Texas. Contours drawn on top of the second red sand pay zone. Map shows ground plan of cross section, Inclosure 1, prepared by Cottingham & Briscoe, Geologists, San Angelo, Texas.

istics into two main divisions; namely, the "red bed series" and the underlying "limestone series," or big lime as it is called. There are five distinct producing horizons in the Chalk Field. Two of these horizons occur in red sand zones in the red bed series, and three of them occur in the big lime.

The stratigraphic position of the different pay horizons may be noted from the accompanying cross section through the field (Figure 1). The cross section was plotted from the drillers' logs which included varying amounts of gypsum and anhydrite in the limestone section. The top of the lime as drawn for the different wells was figured from samples. This explains what appears to be a discrepancy in the correlation of the top of the lime for the different wells.

Structure

The Chalk Field is on an anticline trending eastward for approximately 11 miles. The extent of the field may be noted from Figure 2, which is a subsurface map figured from the second red bed pay zone. The east half of the field is producing from this horizon at around 1,600 feet from a red sand zone in the red bed series.

The west half of the field is producing principally from a dolomitic limestone section below the red beds. Figure 3 is a subsurface map of this part of the field. The contours on this map were drawn on top of the "big lime," which is more reliable as a horizon marker than the red sand pay zones. Enough wells have not been drilled down to the lime in the east half of the field to delineate structure from the lime. Because of the erratic, lenticular nature of the red sand pays, contours drawn on these horizons will coincide only generally with those drawn on the lime. Certain areas now producing from only the red sand zones will likely find conditions of porosity favorable for lime production also.

Pay Formations

At the present time there are five producing horizons in the Chalk Field. The approximate depths to these horizons and the character of the pay formation may be noted from the following table. These horizons are shown graphically on Figure 1.

Pay horizon	Approximate depth feet	Character of formation
First	1,300	red sand
Second	1,600	red sand
Third	2,200	dolomitic lime
Fourth	2,500	dolomitic lime
Fifth	3,000	dolomitic lime

No individual lease in the field is producing from more than three of the above horizons. In the main, wells east of Sections 137 and 156, Block 29, are producing from the 1,600-foot red sand zone. Wells in Sections 135, 136, 137, 156, 157 and 158, are producing from the two sand zones and the second and third lime pay horizons. These sections constitute the present main producing area for the 2,-500 and 3,000-foot lime production. Two wells in Section 159 and one well in Section 134 are producing from the 1,300-foot level.

The Henshaw Settles well in Section 6, Block 32, Township 2s, recently opened up a new lime pay horizon for the field at 2,208 feet. It produced at the rate of 7,320 bbls. per day before being pinched in. A few days ago this well was opened up for a proration test at which time it flowed at the rate of 5,200 bbls. daily.

Taylor-Link's No. 1 Kloh, 1,800 feet north of the Henshaw well, was more recently completed for around 1,000 bbls. daily from the same horizon. The Louisiana Oil & Refining Co.'s No. 1 Settles, a direct east offset to the Henshaw producer, is at present being drilled into the pay, swabbing at the rate of 1,400 bbls. daily.

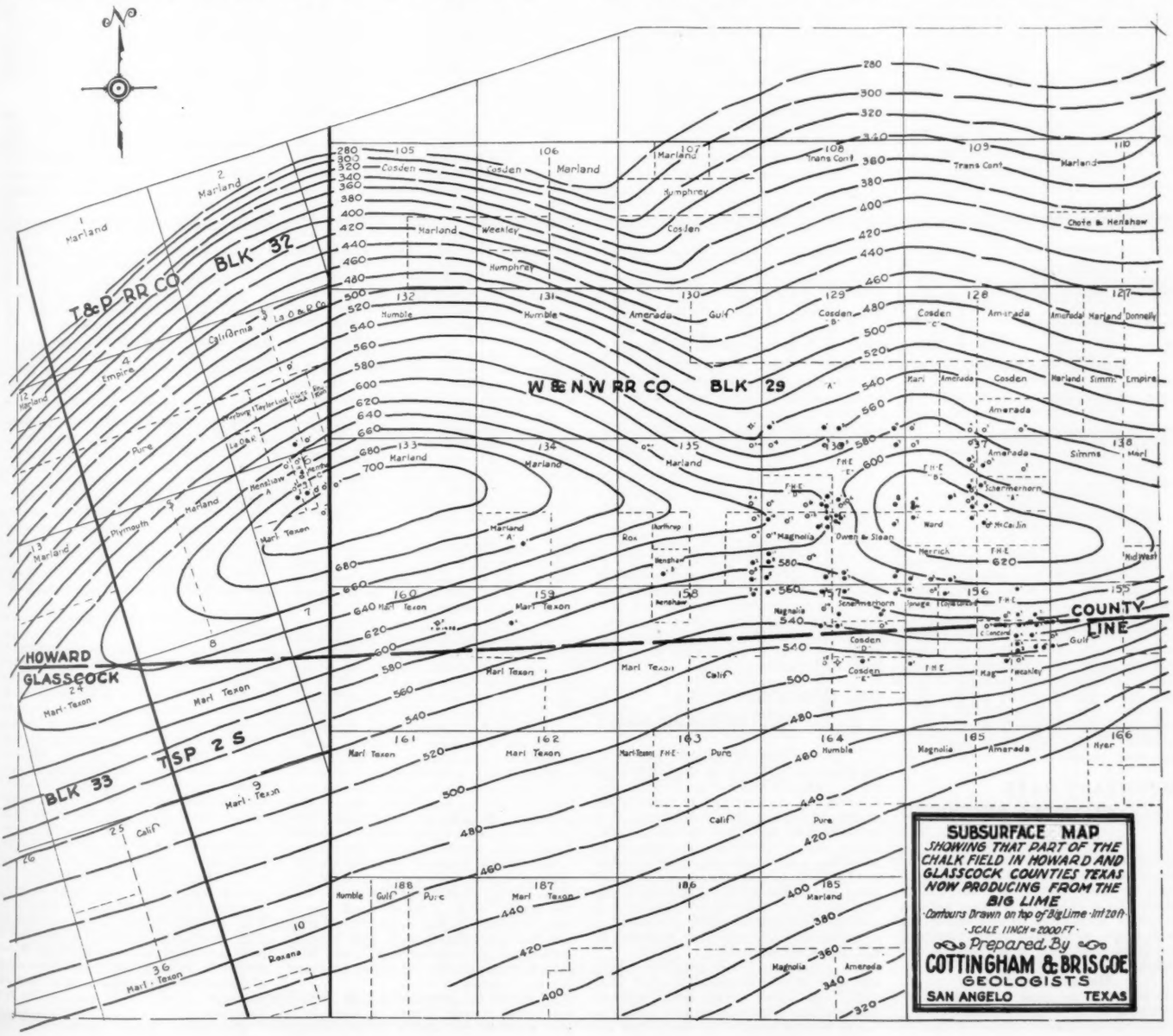
The Marland Fisher well, 3 miles northwest of the Henshaw extension of the Chalk Field, encountered 40 feet of oolitic lime which corresponds to the 2,-200-foot pay (see cross section). This well is 893 feet lower on structure, and naturally carried water at this horizon. Approximately 15 feet below the oolitic zone in the Fisher well another porous zone of greater thickness was encountered carrying water. It appears likely that the wells in the Henshaw extension may increase their production considerably when the corresponding second porous zone in the Fisher well is encountered. In all probability the wells in the Henshaw extension will encounter good production at the 2,500 and 3,000-foot levels also.

Lime Pay

The 2,200-foot lime pay horizon in the Henshaw extension of the Chalk Field is reflected in the Dora Roberts area to the east (Sections 136, 137, etc.) by oil shows only. These shows indicate that the lime at this level becomes correspondingly more porous westward. The intervals between the top of the lime and first and second lime pay horizons are shown in the following table:

A summary of the above shows the following average intervals between the

Company and tract—	Well	Section	Top of lime	Top of first lime pay		Int.	Top of second lime pay	Int.
Henshaw, Settles	1-A	6	2,015		2,208	193	...	...
Henshaw, Settles	1-B	135	2,085		none	...	2,440	355
Sun, Settles	1	135	2,140		none	...	2,530	390
Sun, Settles	2	135	2,120	show	2,290	170	2,510	390
Magnolia, D. Roberts	5	136	2,140	show	2,380	240	2,515	375
Magnolia, D. Roberts	8	136	2,145		none	...	2,485	340
Magnolia, D. Roberts	1	136	2,180		none	...	show 2,565	385
Magnolia, D. Roberts	2	157	2,178	show	2,380	202	show 2,560	382
F. H. E., D. Roberts	1-D	136	2,159	gas show	2,350	191	2,515	356
Merrick & Bristow	1	137	2,160	show	2,354	194	show 2,480	320
Marland, Clay	1-E	138	2,070		none	...	2,480	410
Owen & Sloan, D. Roberts	2	136	2,178	show	2,380	202	none	...


T&P RR CO BLK 32
W&NW RR CO BLK 29
BLK 33 TSP 2S
HOWARD
GLASSCOCK
COUNTY LINE
SUBSURFACE MAP
SHOWING THAT PART OF THE CHALK FIELD IN HOWARD AND GLASSCOCK COUNTIES TEXAS NOW PRODUCING FROM THE BIG LIME
Contours Drawn on top of Big Lime - Int 20 ft
SCALE 1 INCH = 2000 FT
Prepared By
COTTINGHAM & BRISCOE
GEOLOGISTS
SAN ANGELO TEXAS

top of the lime and the lower pay horizons:

1. Top of lime—First lime pay interval averages 199 feet.
2. Top of lime—Second lime pay interval averages 370 feet.
3. Top of lime—Third lime pay interval averages 800 to 840 feet (not shown in above).

Water Situation

Because of the erratic lenticular nature of the two red sand pay horizons no general water level can be established for these two horizons. Water occurs higher on structure in some areas than production in other areas from the same producing zone.

To date no water has shown up between the top of the lime and the second lime pay horizon. A persistent string of water occurs, however, around 50 to 75 feet above the deep Roberts 3,000-foot pay.

No definite water level has been established by present data for the first and second lime pay horizons. For the third lime pay, which occurs around 3,000 feet, the water level approximates the 540-foot contour on the north side of the field, and on the 515-foot contour on the south side, Inclosure 3.

Production

All of the oil now being produced from the two shallow sand pay horizons is being taken by pipe line companies. Production coming from the three lime pay horizons is prorated with an authorized outlet of 30,000 bbls. daily. The following shows the approximate present potential production for the different pay horizons:

Pay horizon	No. wells	Daily potential (bbls.)
1st and 2nd (sand)	180	5,000
1st (lime)	3	7,435
2nd (lime)	6	3,412
3rd (lime)	29	40,190

Character of Oil

The following is a tabulated summary of the analyses of oil from the five different producing horizons in the Chalk Field:

Tract	Well	Sec.	T.P.	Gravity of oil	Gasoline: Per cent	Gasoline: Gravity	I.B.P.	E.P.	Sulphur per cent
First Pay Horizon—Sand:									
Settles	1	159	1,235	33.2	24.7	56.6	116	439	0.85
Roberts	..	...	1,320	34.1	24.7	55.9	106	435	0.95
Second Pay Horizon—Sand:									
...	...	...	1,848	33.1	26.4	55.7	100	435	0.89
Third Pay Horizon—Lime:									
Settles	1-A	6	2,208	32.9	30.6	53.5	120	435	1.00
Fourth Pay Horizon—Lime:									
Settles	1	135	2,530	26.0	23.2	54.0	106	436	3.46
Roberts	..	...	2,517	29.8	26.1	53.0	130	434	1.74
Fifth Pay Horizon—Lime:									
Settles	2	135	2,955	26.8	21.7	54.8	108	435	2.12
Roberts	1	156	2,963	26.2	20.3	54.3	102	439	2.21

Additional Pay Horizons

The following intervals show the approximate depths of penetration of the big lime in the Chalk Field and other near-by producing areas:

Chalk Field, Howard County:
Top of lime—First lime pay interval ..... 200 feet
Top of lime—Second lime pay interval ..... 370 feet
Top of lime—Third lime pay interval ..... 800 to 840 feet
Westbrook Field, Mitchell County:
Top of lime—First lime pay interval ..... 900 feet
Top of lime—Second lime pay interval ..... 1,450 feet
Ira Field, Scurry County:
Top of lime—First lime pay interval ..... 250 feet
Top of lime—Second lime pay interval ..... 1,900 feet

From the foregoing it will be noted that the Chalk Field has two additional horizons which may later be productive. The main producing horizon in the Westbrook Field in Mitchell County is encountered 1,450 to 1,500 feet below the top of the lime. One well in the Ira Field in Scurry County produced 15 bbls. daily for some months 1,900 feet below the top of the lime. These horizons have not yet been penetrated in the Chalk Field. Future drilling may prove conditions of porosity favorable for production at these corresponding horizons.

IMPORTANT RATE CHANGES PROPOSED

(Continued from Page 32)

Continent Field to the East will not, as contrasted with present rates in the East, result in relationships that are unduly preferential of the Mid-Continent refiners or unduly prejudicial to refiners in the East, except to Indiana which situation, has before indicated is covered by the findings."

Rates to Southeast

In regard to the rates to the southeastern states, south of the Ohio and Potomac Rivers, the examiners propose a mileage basis. These rates are on a sliding scale starting with a minimum rate of 12 cents per hundredweight for 10 miles or less with a top rate of 74 cents per hundredweight for 1,700 miles. Intermediate rates are on the same basis. In regard to Baton Rouge and New Orleans, where large refineries are located, the examiner proposes one group for the two points in all distances in excess of 250 miles. In these proposed rates the so-called Mississippi territory is excepted, the new rates to apply to the territory east of the Mobile and Ohio railroad from Mobile to Cairo.

These rates to the southeast are of special importance to the North Louisiana, Arkansas and Louisiana coastal refiners. The mileage scale if adopted obviously will work to the disadvantage of the southern Louisiana refiners. Rates from Oklahoma to these points will be lowered and in some cases the North Texas refiners will be benefited.

Accurate data showing the exact relationship between the present and proposed rates to all these southeastern points are not available as some time is required to work out the mileage basis in rate application. One Oklahoma traffic manager said under the examiners' report the new Oklahoma rate to Atlanta would be 53 cents per hundredweight, which compares to the present rate of 64½ cents. The following estimates were made in regard to rates to Atlanta from other points: North Texas present rates, 58½ cents; new rates, 54 cents. New Orleans present rate, 41½ cents; new rate, 42 or 43 cents. North Louisiana present rate, 55½ cents; new rate, 42 or 43 cents.

Natural Gasoline

The natural gasoline manufacturers failed to obtain all the concessions asked for at the hearings. It was pointed out at the hearings that the weight of natural gasoline is less than the regular refinery gasoline. Due to this situation, and also the fact that natural gasoline is raw material used as blending material in the production of finished gasoline, the manufacturers asked for a rate under that of refinery gasoline. This request was not approved in the examiners' report, which will mean that natural gasoline will take the rate prescribed for refined products.

The examiner recommended that the rate on fuel oil and crude oil be 80 per cent of the refined oil rate.

OIL INDUSTRY USES WATERWAYS MOST

(Continued from Page 32)

communities. Their first need to get attention from Congress is a statement showing the use that will be made of the deeper waterway. The preparation of a statement of that kind is not possible unless expert knowledge is employed in gathering and assembling the essential facts. Some projects have been long delayed or entirely neglected because of the lack of expert knowledge. Others have promptly received favorable attention because of skill in presenting the case of the interested community.

No one knows better than the traffic managers of the oil companies just what will be the effect on the prices of their commodities, within particular areas, of larger bulk shipments by water that are only possible by means of improvements in navigation. Such men are capable of assisting local communities in presenting their arguments for appropriations. The routine involved in such an investigation is one that invites such traffic experts to lend their advice and it is well understood that their co-operation would be welcome in hundreds of localities that are now seeking better shipping facilities.

After a community has made a beginning for the promotion of its transportation facilities the project is called to the attention of the interested senator or representative and it appears in legislation in the form of a bill for a survey that is referred to the War Department. By that means it reaches the local engineer who makes a reconnaissance and reports to the chief of engineers of the Army and upon that report the chief of engineers decides whether the project would serve a public purpose worthy of public support.

At that very point, the local interests need expert advice, and if the chief of engineers gives a favorable decision, hearings along the route of the proposed project are arranged and all persons interested then have an opportunity to present facts and figures to sustain the contention that the improvement would be warranted by traffic benefits. The report of those hearings is sent to the division engineer and he in turn reports to the chief of engineers in charge of rivers and harbor improvement. It is then referred to the board of engineers and that board gives it personal attention. In some cases the board of engineers has made long trips to personally investigate the needs of the communities, and the opportunities that would result from the required expenditure. Finally the chief of engineers either approves or disapproves the report of the board and the finding of the chief of engineers and of the board are sent to Congress and are considered by the committees of both houses that pass upon appropriations for rivers and harbors.

Senatorial Action

These senatorial committees then give hearings on the particular projects that are brought to their attention and those hearings are open to anyone who has any suggestion to offer, whether for or against the project. No project can be approved without being subjected to this routine.

At all states of progress leading to an appropriation, opportunity is offered for the presentation of facts and figures to influence action on a given project. Industries that contemplate using the improved navigable streams are as welcome as individuals and associations interested in the community.

Among those who are best informed in respect to this entire procedure it is believed that if traffic men of interested oil companies would make a study of such contemplated improvements in navigation, especially from the point of view of its effect on freight rates, they would be more influential than any other body of men because of their expert knowledge and because the committees would be convinced that they were not interested in boosting local interests for the promotion of real estate projects or merely to have money spent in that neighborhood, but because they could see a real business advantage in having the work put through. The traffic men of the oil companies should begin by lending their expert knowledge when the local hearing is held and they should continue their interest at every stage of the procedure.

Definite statements concerning traffic needs and the probability of making the enterprise pay a dividend on the money invested are sought by senators and representatives who pass upon these appropriations. It must not be supposed that log rolling and "pork barrel" methods dominate in determining the committees' votes, because hundreds of cases are disallowed, and unless an appropriation appears to be justified by conditions and the results to be attained some one is sure to attack it and unwarranted projects for improvement that have been incorporated in appropriation bills have been known to defeat an entire river and harbor measure.

It should be remembered that until a waterway exceeds 3 feet in depth it is not possible to obtain transportation rates much more favorable than are offered by the railroad. As the depth exceeds 3 feet the advantage to the shipper becomes more and more pronounced so that a study of the inland waterway system shows that the great opportunity for decreased rates is to be realized in the future even more than in the past.

No waterway is ever looked upon as completed for the purposes of navigation so long as it can be made to give a better service and as the traffic increases or shows reasonable prospect for increase in the near future the argument for deepening the channel may readily be sustained before a committee of Congress.

Not only does the waterway serve the community located on it, but under the present system of distribution by tank wagons the area served by each landing extends distances of 50 miles and perhaps more. So it is that projects for deeper waterways are linked with projects for better roads, which fact adds to the reasons for expending money on the inland waterways.

Present System

Navigation maintenance and improvement operations now involve some 200 harbors, 292 rivers and 49 canals and other waterways. The estimated cost of the new work on all projects specifically authorized by Congress is $1,285,000,000 of which amount there remains to be appropriated $243,000,000. The amount is needed for immediate expenditure.

It is estimated that harbors and waterways result in an annual saving in the freight bills of the nation computed at $600,000,000. It has been shown that each successive depth in main channels has justified itself by the use made by commerce.

Inland Waterways

Work is steadily progressing in the National Inland Waterway Plan. For continuing the improvements in the Mississippi System, a total of $20,000,000 is included in the estimates now before Congress. The Warrior Branch to Birmingport is completed. Boats are now in operation on the north and south trunk line from the Twin Cities to New Orleans. Federal improvements on the Illinois trunk line south from Chicago will be completed by 1931, in ample time to meet the program established by the State of Illinois for its section of the waterway. On the east and west lines, the Ohio River will be completed in 1929, and the Missouri will be in condition to be used for barge line transportation as far as Kansas City some time in 1930, and work on its extension westward is in progress.

The intracoastal waterway in Louisiana and Texas will extend the Mississippi System to Texas. The Atlantic Intracoastal Waterway and the Pacific Coast navigable rivers system are already in operation and the former is being extended. Some of the tributary streams of these great systems are completed, others are in different states of advancement. The department has recommended material increases in depths of channels and connecting rivers of the Great Lakes System.

The present plan is to improve the Mississippi River system of natural waterways so as to provide channels adequate for the traffic, but limited to the extent of reasonable engineering possibilities. Considering only the main arteries of the system, the Mississippi to St. Paul, the Ohio System, the Missouri to Kansas City, the Illinois River Route to Chicago, and the Intercoastal Canal to Louisiana, Texas, Mississippi and Alabama ports, there have been expended to date over $300,000,000 for the improvement of navigation and there remains to be done work totaling over $50,000,000, not including any work not yet approved by Congress.

Development of Tributaries

In a few years a continuous navigable waterway, 9 feet deep, from Pittsburgh, Pa., and St. Louis, Mo., to Houston, Tex., with many thousands of miles of tributary feeders not less than 6 feet deep will be available. The improvement of these tributary feeders is of vast importance in delivering gasoline to new localities.

The water borne commerce of the

United States is now over 500,000,000 tons annually.

The commerce on the Mississippi River between St. Louis and New Orleans is now greater than ever before. In the first official census of transportation by water in the United States, made in 1889, the total water borne shipments from points on the Mississippi River above New Orleans were reported at 4,206,745 tons. This figure includes all traffic between points on the Mississippi River between St. Louis and New Orleans and all shipments to points on the various tributaries. It does not include, however, receipts from the Ohio and other tributaries, which as nearly as can be ascertained, amounted to some 1,700,000 tons.

Making allowance for incomplete records in those days, it appears that the total traffic was in the neighborhood of 6,000,000 tons. For the calendar year 1926 the total river traffic between St. Louis and New Orleans, eliminating all known duplications, was 14,462,000 tons, a gain of 1,321,000 tons over 1925. The use made of these waterways is regarded as the best proof of their value.

When the Seventy-first Congress assembles in regular session in December of 1929, there is likely to be a more friendly feeling toward projects for the improvement of inland waterways than ever before. This fact makes the present time especially opportune for concerted action by traffic managers of the oil companies in the formulation of a plan of campaign for the promotion of better navigation to care for the needs of the growing traffic in gasoline and other products of petroleum.

NATIONAL COMMITTEE TO STUDY SITUATION

(Continued from Page 29)

lands. When the Forty-first Legislature convenes it is probable Governor Moody will recommend the passage of such bills.

Representing the West Texas Chamber of Commerce, J. E. Williams, Pampa; Jax Cowden, San Angelo; Homer J. Wade of Stamford and H. J. Adair of Wichita Falls, called upon the Governor last week and presented resolutions passed by the Oil and Gas Division of the West Texas Chamber of Commerce favoring such legislation. The resolution in regard to property titles was mainly aimed at recent suits filed by the State affecting titles of vacancy strips and "navigable" streams. They recommended:

1. Amending the laws so that when the State sues to recover "vacant tract" that the adjacent property owner shall be assured priority rights.

2. Protecting titles of property owners whose original surveys took in small creeks and rivers now declared to be navigable and therefore the property of the State. On such properties, creeks whose beds are dry, wells have been drilled and the States is after them.

3. Making it mandatory that any such suits filed shall be tried in the county where the land is located instead of in Travis County where all such hearings are at present held.

The remedy for the leasing problem of University Lands makes these five suggestions:

1. Sale of University lands in smaller tracts and at reasonable intervals.

2. Disposing of these leases by auction to the highest bidder instead of the sealed bidding system.

3. Giving the regents of the University right to determine what tracts shall be sold and the time of the sales.

4. Geological survey of the lands to determine which are the most valuable.

5. Postponement of all present scheduled sales until the Legislature can enact remedial measures.

Governor Moody is already on record favoring a change in the law governing leasing of University lands. After the conference with the Chamber of Commerce representatives the Governor was reported especially interested in legislation concerning navigable streams and wants to make further inquiries into the vacancy controversy.

PROPOSED CODE EFFORT TO OVERCOME BAD HABITS

(Continued from Page 29)

has a logical connection with the restriction of individual pools if discrimination and hardships are to be avoided.

These are some of the efforts in the larger movement of which the code is a part.

I hope that the industry will adopt, with the government's approval, a code of sound trade practices. A code that is fair to all branches of the industry and that is honorably put into effect will go a long way toward making it possible for the industry to do business with common business sense and at a fair business profit.

An effort of this kind must in the last analysis be tested by its results. We want this code, if adopted, to succeed, not to become a mere gesture. It must not be permitted to become the oil industry's Eighteenth amendment.

With this purpose, I have one observation to make. The industry's indefensible marketing practices have been, I think, an effect rather than a cause. The individual units of the industry, governed by ambitious company programs adopted without relation to other similar programs, have produced too much gasoline. The necessity of finding a market for a part of this gasoline somehow, somewhere, and at some price has brought about many of the practices which the code condemns.

Self-Restraint

If this is true then the greatest single factor in carrying out the code rules will be the exercise of restraint in gasoline production. In fact there is evidence that some restraint of that character exercised in 1928 has made a start in the correction of some marketing abuses.

There is also evidence, however, that new refinery construction, refinery improvements, and refinery additions have been and are proceeding more rapidly than consumption requirements warrant. These expansions are being made, I think, in the light of an analysis of the requirements of the domestic or foreign public. The consequence is likely to be a substantial overproduction of gasoline, and if gasoline is overproduced it will be marketed under much the same pressure that has accounted for the objectionable marketing methods.

It seems obvious that restraint in refinery operations will greatly assist in the constructive steps which the industry is taking in both crude oil production and in marketing its products. The individual refinery must of course be left free to operate as its management pleases, but the more facts that are made available to the management the more intelligent are likely to be the operations. Individual company operations will always be conducted in self interest. But enlightened self interest is more likely to be profitable than uninformed selfishness.

Public Interest Paramount

The oil industry, taken as a whole, has shown to a high degree in thought and conduct, its appreciation of the fact that in solving its problems the public interest is of paramount importance. It has not to the same degree fully realized that it has a public duty to operate at a profit. It has seemed to think that the capital losses of its many unsuccessful or only meagerly successful enterprises, from production all the way to distribution, were merely private misfortunes, a necessary evil inherent in the competitive system of doing business. If that were true these private misfortunes would be deplorable enough, for among other things they must inevitably be reflected in the price which the industry pays for its new capital requirements. But in point of fact the whole public pays in the long run for the oil industry's unprofitable operations. Therefore the industry has a pub-

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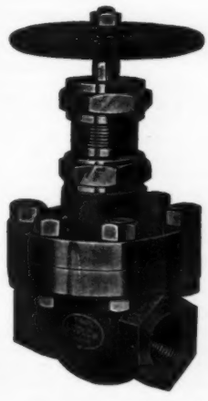

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lic duty to make every intelligent effort to operate at a profit.

I do not expect the millenium in the oil industry tomorrow, or the day after. But that the industry has reached a turning point in its history seems evident enough to me. It has been crying for leadership. Let us recognize that leadership is manifesting itself. It takes time for services to be fully appraised. I could name, if I cared to, certain men whose leadership will be appreciated as no executive has been looked to for guidance since Alfred C. Bedford.

The code is but one of several steps forward that are being taken. The significant fact of the whole change of attitude is the growing recognition that the oil industry has either a common welfare, or no welfare at all.

PANHANDLE FIELDS

(Continued from Page 39)

doned at 1,616 feet. G. R. Ridgeway's No. 2 Plowman-B was dry and abandoned at 1,040 feet. American Refining Co. and others' No. 5 Cernosek made 23 bbls. at 1,421-34 feet. Humble Oil & Refining Co.'s No. 1 Hudson made 17 bbls. at 1,168-74 feet. J. B. Peacock's No. Williams made 40 bbls. at 571-76 feet. Perkins & Cullum's No. 1 Williams made 11 bbls. at 571-74 feet and was drilled to a total depth of 575 feet.

Cooke County

Humble Oil & Refining Co.'s No. 1 Poteet made 12 bbls. at 1,294-98 feet and was drilled to a total depth of 1,535 feet. Thornton-Taubert Oil Co.'s No. 1 Dennis made 16 bbls. at 1,233-1,304 feet.

Jack County

Bryson Oil & Gas Co.'s No. 1 Loving made 231 bbls. at 3,167-75 feet. Prairie Oil & Gas Co.'s No. 1 Bryson made 254 bbls. at 3,095-3,112 feet.

Foard County

Fain McGaha's No. 3 Matthews was dry and abandoned at 2,525 feet.

Montague County

Pure Oil Co.'s No. 11 Keck-A made 16 bbls. at 804-32 feet.

Moore County

Phillips Petroleum Co.'s No. 2 Sneed James was shot with 80 quarts at 3,176-3,207 feet and made 75 bbls.

Young County

Fain McGaha's No. 2 Campbell was dry and abandoned at 960 feet. Pennell and others' No. 1 Baker was dry and abandoned at 578 feet. Petroleum Production Co.'s No. 1 Boley was dry and abandoned at 1,200 feet. Its No. 4 Parrish-A made 25 bbls. at 1,095-1,104 feet. Prairie Oil & Gas Co.'s No. 5 Campbell made 95 bbls. at 958-68 feet. Wichita Production Co.'s No. 1 Farmer-B was dry and abandoned at 1,100 feet.

Wilbarger County

Burton & Shaw's No. 1 Waggoner-F was dry and abandoned at 2,410 feet. Golding Cochran and others' No. 1 Waggoner-I was dry and abandoned at 1,942 feet. The Texas Company and Staley Wynne's No. 1 Waggoner was dry and abandoned at 2,503 feet. Waggoner Refining Co.'s No. 5 Waggoner-G made 100 bbls. at 2,320-43 feet. Its No. 7 Waggoner-G made 250 bbls. at 2,307-15 feet and 2,402-30 feet. Its No. 7-A Waggoner-H made 225 bbls. at 2,290-2,305 feet and 2,393-2,418 feet. Its No. 14 Waggoner-H made 165 bbls. at 2,327-37 feet.

Wichita County

Cooper & Mischler's No. 14 Waggoner Brothers was dry and abandoned at 1,537 feet. Humble Oil & Refining Co.'s No. 4 Taylor made 150 bbls. at 1,472-87 feet. T. F. Hunter's No. 14 Waggoner Brothers made 22 bbls. at 1,424-39 feet. J. T. Lobin and others' No. 1 H. B. Hines made 3 bbls. at 202-304 feet. Their No. 2 Hines was dry and abandoned at 302 feet. Their No. 3 Hines was dry and abandoned at 315 feet. Magnolia Petroleum Co.'s No. 21 Viles was dry and abandoned at 2,130 feet. Staley & Wynne's No. 9 Kemp and Kemper had an oil show at 1,467-75 feet, a water show at 1,475-80 feet, was plugged back to 1,475 feet and had an initial production of 125 bbls. United Producers Co.'s No. 6 Hodges-A swabbed 500 bbls. and pumped 320 bbls. at 1,466½-88½ feet.

PRAIRIE WILL ENLARGE PIPE LINE TO BETTER SERVE THE GREAT LAKES

Announcement has been made by the Prairie Pipe Line Co. that it would increase the capacity of 735 miles of its main line system between Panova station near Shawnee in Pottawatomie County, Oklahoma, and Griffith station near the city of Griffith, Ind., at which point it delivers crude oil to the Indiana Pipe Line Co. The plans call for the capacity of the line being increased from 200,000 bbls., the present figure, to 220,000 bbls. daily, and this will be accomplished through the construction of a system of loops of 8-inch and 12-inch lines.

The total cost of the project will be approximately $7,500,000, and work will be started early in the spring, and rushed to completion. Contracts will be let by the Prairie for the ditching and stringing of the pipe, and the actual work of welding and connecting the lines will be done by Prairie forces, following the regular practice of the company in work of this character.

On the main line, 20 pump stations will be affected by the proposed plans, and an additional 9,500-horsepower will be purchased. All additional engine power will be of the Diesel type excepting some steam equipment which will be used for temporary purposes. The greatest change will be made at the Panova station which will be completely remodeled, and will become one of the most important stations in the southern division. The Panova station will be increased by the installation of two more large Diesel engines of 600 horsepower each, and a battery of working tanks equipped with floating roofs.

Coat Pipe at Mills

The work of constructing the necessary loops will call for the building of 455 miles of line, of which 285 miles will be 8-inch, and 170 miles 12-inch. The lines will be built of plain end welded pipe, the lengths of which are not mentioned in the present specifications. The specifications call for the coating and wrapping of the pipe at the mill, and it will be shipped to the field ready for welding.

There will be some additional tankage constructed at various points along the line, but this will be limited according to Prairie officials, as they explain that the majority of the main line stations now have working tanks sufficient to take care of the added capacity of the line.

There is added significance in the announcement in the fact this is the third major pipe line project affecting the eastbound movement of Mid-Continent crude to the Great Lakes region and the territory east which has been announced within the past seven months. The first project to be made public was the announcement that the Sinclair Pipe Line Co. would increase the capacity of its line from Drumright, Okla., to Chicago, Ill., by 40,000 bbls. daily. Work on this line is now in progress. The second large pipe line project of this nature was the announcement that the Texas Pipe Line Co. and the Empire Pipe Line Co. would jointly lay a line from Drumright, Okla., to Lockport, Ill., where The Texas Company owns and operates a refinery. When all three lines are completed, the transportation capacity of Mid-Continent crude to the Great Lakes and eastern territory will have been increased by 100,000 bbls. per day.

Students of this situation point to the fact that this expansion is the natural result of the increasing demand for petroleum and its products in the Great Lakes and in the eastern territory, and this seems logical when it is considered that these are the first important enlargements of the eastbound crude oil transportation system which have been made since the lines were originally constructed. The Prairie lines eastbound were given some slight increase three years ago by the construction of a very limited number of loops, but that work was relatively unimportant.

In making the announcement regarding the new lines, officials of the Prairie Pipe Line Co. state that their eastbound transportation system has been running at full capacity for practically two years, and that this has made advisable the present plans for enlarging the capacity of the system.

To Build Other Lines

Simultaneously with the announcement of the main line changes, the Prairie Pipe Line Co. announced two other minor projects, first the construction of a line from the Florence station in Butler County Kansas, to the recently discovered oil field near Wichita, Kans., and second, the construction of a loop between Adding station on the line from the Texas Panhale to Ringling, Okla., and Ringling station.

The new Kansas line requires the construction of 35 miles of 6-inch line, and the building of one pump station at the new field. The line will be of 6-inch welded pipe, coated and wrapped at the mill, and the estimated cost of the line and station is placed at $300,000. The matter of looping the line from Adding station to Ringling station calls for the construction of 24 miles of 6-inch loop between these stations. The same specifications covering the Kansas line apply to this loop, and is will require only minor changes in the station equipment.

The line from the Florence station to the Wichita Field will be built in accordance with the company's plan for expansion into new fields, and the prospects of the Wichita Field have been responsible for the decision to carry a line into that region. The looping of the line between Adding station and Ringling is reported to be merely a matter of giving added capacity to the line.

CALIFORNIA DISTRIBUTORS SELL OR LEASE STATIONS

(Continued from Page 121)

sales manager. The latter has had 10 years' service resigning as division superintendent.

Marketing conditions on the Pacific Coast have been very unsettled during the past several weeks and while none of the major refiners has cut the service station price gasoline can be purchased all the way from 15 to 21 cents per gallon, these quotations including of course the usual 3-cent state tax. The leasing of stations to individuals passes the buck to independent operators and while they are not expected to cut unless competitors initiate such a move and thus divert business away from usual channels this gives independent service station operators considerable leeway with the result that in many cases one can buy gasoline at any desired price above 15 cents per gallon.

Most service stations do not display price tags if underselling the regular posted price but the increasing number of price cutters displaying posters quoting gasoline at 6 gallons for $1 will no doubt force legitimate independent service station operators to follow suit. The first departure from the policy of refraining from posting large cut rate signs in independent stations was noticed a few days ago when a number of independents selling Sunset gasoline, manufactured by the California Eastern Oil Co., posted price tags reading 18 cents per gallon in Los Angeles territory. This is 2 cents below the posted price of 21½ cents including 3 cents per gallon state tax. No general reduction has taken place although the situation is surely although gradually approaching a crisis when something is bound to happen if refiners fail to increase the differential to resellers. In Portland, Ore., an unrestricted price war has been going on for the past several days among independent operators the station price of gasoline having already dropped from 21½ cents per gallon to 15½ cents although the Independent Dealers Association has decided that its members will maintain a price of 18 cents. This cut in gasoline has been borne by resellers as refiners have so far maintained a uniform differential with no change having been made in tank wagon price.

WEST TEXAS FIELDS

(Continued from Page 40)

47,771 bbls. daily against 50,311 bbls. for the previous week.

Atlantic company's shipments of 18,161 bbls. daily increased the pipe line runs to 221,145 bbls. daily from 206,932 bbls. Daily average production for that week increased approximately 5,000 bbls., but tank car shipments fell off 5,000 bbls. daily, and the refinery runs were down to 26,924 bbls. daily, a drop of approximately 4,500 bbls.

A 44,217-bbl. loss in Yates Pool potential production was reported by the umpire when his figures revealed the potential production of the pool to be 4,348,191. For this report all of the 284 wells were tested. Six new wells were completed during the past 15-day period and added five new units, which brings the total number of units to 157.9.

Yates Production

Yates Pool allowed production will probably be increased to 100,000 bbls. daily by January 16. Several of the independent companies operating in the pool and one of the major producers requested the 27,500-bbl. increase. The Yates Pool Advisory Committee recommended that the Railroad Commission increase the allowed production to 100,000 bbls. daily and an open hearing for the matter will probably be held this week.

ESTIMATED DAILY AVERAGE PRODUCTION WEST TEXAS
Week Ended January 5

County—	Wells	Prod.
Crane County	272	38,052
Crockett County	47	2,402
Ector County	2	3
Fisher County	7	880
Glasscock County	18	1,210
Howard County	222	36,904
Jones County	58	5,979
Loving County	8	311
Mitchell County	141	2,528
Pecos County	279	73,106
Reagan County	231	18,248
Runnels County	3	219
Scurry County	5	21
Upton County	260	13,625
Ward County	1	100
Winkler County	488	160,662
Total this week		353,273
Total last week		345,660
Difference		7,613

WEST TEXAS COMPLETIONS
Week Ended January 5

Jones County

Atkinson & Sandefer's No. 1 Hudspeth, 300 feet south of center of north line, Section 22, Miles Survey, found the lime pay at 2,578-85 feet, had an initial production of 50 bbls. oil, 75 bbls. water and is now making 30 bbls of oil and 60 bbls. of water. Roberts Oil Corp.'s No. 6 Grayson, 330 feet south and west of northeast corner of lease, Section 13, Block 19, T.&P. Survey, made 50 bbls. of oil at 2,515-20 feet.

Garza County

Emerald Oil Co.'s No. 3 Boren, NW of NE, Section 137, Block 5, H.&G.N. R.R. Survey, was drilled to a total depth of 4,801 feet, had an oil show at 2,530-40 feet, plugged back to 2,592 feet, shot with 100 quarts at 2,535-65 feet and had an initial production of 10 bbls.

Howard County

Sun Oil Co.'s No. 4 Settles, 1,650 feet from the south and 330 feet from the east line of Section 135, Block 29, W.&N.W. R.R. Survey, had an initial production of 500 bbls. at 2,505-52 feet.

Irion County

Signal Oil Corp.'s No. 1 Suggs, 1,320 feet from the north and west lines of Section 9, Block H, T.C.R.R. Survey, was dry and abandoned at 3,155 feet. C. J. Wrightsman's No. 1 Sawyer, 1,320 feet from north and west lines of Section 3,032, Block 24, location was abandoned.

Pecos County

McCarty Oil Co.'s No. 3 Bennett, 1,602 feet from the north line and 1,620 feet from the west line of Section 592, Block 105, G.C.&S.F.R.R. Survey, was dry and abandoned at 1,400 feet. Gulf Production Co.'s No. 13 Smith, 990 feet from the south line and 1,136 feet from the west line of NE cor. Section 22, Block

194, made 360 bbls. hourly at 1,370-1,490 feet. Gulf Production Co.'s No. 20 Yates, Runnels County School Land, was dry and abandoned at 1,324 feet. Marland Oil Co.'s No. 8 Yates-A made 605 bbls. in 23 hours, 50 per cent water, at 991-1,047 feet. The location was abandoned on the Pecos Valley Oil Co.'s No. 2 fee. Gulf Production Co.'s No. 21 Yates, 1,700 feet from the south line and 13,450 feet from the west line of Runnels County School Land, was dry and abandoned at 1,375 feet. Gulf Production Co.'s No. 22 Yates, 5,610 feet north and 1,556 feet east of southwest corner of survey, topped the lime at 1,315 feet, topped the pay at 1,327 feet, was drilled to a total depth of 1,418 feet and had an initial production of 50 bbls.

Mitchell County

Huconey Oil Co.'s No. 1 Weichel, 2,310 feet from the south line and 990 feet from the west line of Section 78, Block 26, topped the lime at 1,342 feet, had a hole full of salt water at 3,995 feet and was dry and abandoned at 4,002 feet.

Tom Green County

Tulsa Oil Co.'s No. 1 Adams, 1,320 feet from south and west lines of Section 157, Block 11, was dry and abandoned at 1,040 feet.

Winkler County

Anderson and others' No. 1 Hendricks, 2,310 feet south and 990 feet east of Section 5, Block B-12, topped the lime at 2,740 feet, had an oil show at 2,930 feet, found sulphur water at 3,090 feet and was dry and abandoned at 3,190 feet. Culberson Oil Co.'s No. 1 Hendricks, 1,650 feet south and east of Section 40, Block B-5, topped the lime at 2,270 feet, has a gas show at 2,431 feet, topped the pay at 2,660 feet, was drilled to a total depth of 3,025 feet and had an initial production of 125 bbls. every 15 hours. The rig was abandoned on Eastland Oil Co.'s No. 2-B Hendricks, 990 feet south and 2,310 feet east of Section 46, Block 26. Gulf Production Co.'s No. 1 Cowden, 2,200 feet south and 1,650 feet west of Section 5, Block B-12, topped the lime at 2,481 feet, topped the pay at 2,780 feet, was drilled to a total depth of 2,968 feet and had an initial production of 883 bbls. hourly, 1½ per cent water. Gulf Production Co.'s No. 1 Hendricks, 2,310 feet north and west of Section 44, Block 26, topped the lime at 2,830 feet, topped the pay at 2,841 feet, was drilled to a total depth of 2,885 feet and had an initial production of 400 bbls. hourly. Republic Production Co.'s No. 5-A Hendricks, 1,650 feet south and 2,310 feet west of Section 45, Block 26, made 15,000 bbls. daily, 20 per cent water, at 2,630-2,737 feet. Its No. 6-A Hendricks, 990 feet south and 2,310 feet west of Section 45, Block 26, topped the lime at 2,335 feet, topped the pay at 2,578 feet, was drilled to a total depth of 2,735 feet and had an initial production of 35,000 bbls. daily, 8 per cent water. Shell-The Texas Company's No. 6-A Hendricks, 1,320 feet north and 990 feet west of Section 3, Block B-12, topped the pay at 2,650 feet and had an initial production of 216 bbls. hourly, 3 per cent water, after having been drilled to a total depth of 3,011 feet. Southern Crude Oil Purchasing Co.'s No. 4 Hendricks T-67-1-A, located 1,650 feet south and 330 feet east of Section 42, Block B-5, rig was abandoned. Its No. 4 Hendricks T-67-2-D, located 990 feet south and 330 feet west of Section 28, Block 26, topped the lime at 2,650 feet, topped the pay at 2,946 feet, was drilled to a total depth of 3,002 feet and had an initial production of 50 bbls. daily, 30 per cent water. Its No. 1 Hendricks T-68-3-B, located 440 feet north and 2,310 feet east of Section 46, Block 26, topped the lime at 2,296 feet, topped the pay at 2,930 feet, was drilled to a total depth of 3,050 feet and had an initial production of 100 bbls. daily. Its No. 25 Hendricks T-88-M, located 2,310 feet south and 330 feet east of Section 33, Block 26, topped the lime at 2,382 feet, topped the pay at 2,695, was drilled to a total depth of 2,829 feet and had an initial production of 75 bbls. hourly. Its No. 28 Hendricks T-88-M, located 990 feet south and west of Section 33, Block 26, had an initial production of 300 bbls. hourly at 2,675-85 feet. Its No. 29 T-88-M, located 990 feet south and 1,650 feet east of Section 33, Block 26, topped the lime at 2,331 feet, topped the pay at 2,630 feet, was drilled to a total depth of 2,727 feet and had an initial production of 25,500 bbls. daily. Its No. 30 Hendricks T-88-M, located 440 feet north and 330 feet east of Section 33, Block 26, topped the lime at 2,309 feet, topped the pay at 2,730 feet, was drilled to a total depth of 2,735 feet and had an initial production of 185 bbls. hourly. Its No. 1 T-88-Q, located 2,200 feet north and 330 feet west of Section 27, Block 26, topped the lime at 2,342 feet, topped the pay at 2,630 feet, was drilled to a total depth of 2,667 feet and had an initial production of 32 bbls. hourly, 20 per cent water. Its No. 1 Hendricks T-89-C, located 440 feet south and 2,310 feet east of Section 35, Block B-5, topped the lime at 2,268 feet, topped the pay at 2,760 feet, was drilled to a total depth of 3,018 feet and had an initial production of 450 bbls. daily, 10 per cent water.

OIL PROBLEM IS WORLD WIDE; ZONING SUGGESTED AS SOLUTION

By Henry M. Dawes
President, Pure Oil Co.

The interest of the oil industry is concentrated upon its ability to regulate the supply of crude to meet the world's demand. The problem has to be met as a world-wide one and not sectional and foreign production must be synchronized with American production to attain the desired end.

The constant availability of its raw material is a fundamental upon which every industry must be based. Constant and violent fluctuation in the availability of a basic natural commodity disturbs not only the industry which is concerned with its manufacture and distribution to the public but all industries which use the ultimate product. Availability involves not only regularity of supply but reasonable regularity of price, and a third factor, marketability or demand, completes the cycle.

Demand Definite

In approaching its problem, the most definite thing the petroleum industry has is the market or demand. While this is, of course, more or less affected by price, it is possible to make reasonable enough approximations as to forecasted prices so that for periods of one or two years some approach to the actual consumptive capacity of the world can be reached. This figure naturally represents the amount of oil or raw material which the industry should under ideal conditions produce. Perfectly obvious considerations demonstrate that the problem of the oil industry is one of regular supply of basic raw material. While faulty and uneconomic distribution distorts the price schedule, that condition is, after all, primarily a matter of concern to the industry rather than the public at large, and parenthetically it may be said that in this respect the petroleum industry has made very great progress in the last 12 months.

Co-ordination Suggested

The ideal procedure in the regulation of production seems to be, first to determine the amount of the products that the world required; second, to disseminate this information to the producers and to let them, by mutual agreement after study of their situation, determine just what sound economics would dictate should be supplied from each producing zone. The difficulty in the past has always been to convince the operators in one zone that the ultimate effect of the orderly regulation of their production is to benefit them and not unduly those in another zone. This question involves not only the relationship between Oklahoma, Texas, California, etc., but South America, Persia, Russia and the whole world. To restrict the production in Seminole, Okla., only to have it increased in Persia, or vice versa, is neither fair nor practical.

Space does not permit a description of the concrete and definite plans and agreements that are already under way to this end, but the machinery for the cor-ordination of the world's petroleum markets is being very rapidly evolved. Human ingenuity always produces the mechanics when once the mutuality of a situation has been developed. Present developments warrant the statement that self-interest and social obligation are asserting themselves in the world-wide industry to such an extent that a high degree of co-ordination in the production of the basic material will be accomplished this year. This is the most important thing that could occur in the industry.

PROSPERITY DEPENDS ON CONTROL OF OUTPUT

(Continued from Page 38)

ing processes, and a larger fraction of each barrel of crude has been converted into gasoline. Altogether the whole year has been a constructive period during which our problems have been clearly visualized and their possible solution suggested.

The year 1929 will be what the industry makes it. If no more crude oil is permitted to come to the surface than is required to meet the current demand for essential products, the year will be characterized by satisfactory profits to the entire industry and by gasoline prices satisfactory to the public at large.

On the other hand, failure to control production during 1929 means inevitably a flood of crude oil, demoralized prices, a profitless year for the industry and both economic and actual waste of petroleum.

To control production and to conserve for essential uses is in line with the long-standing plea of all well-informed economists. President Coolidge, as long ago as 1915, appointed a federal conservation board to this very end. Such a policy is also in line with public interest since our national heritage of petroleum, large or small as it may be, is our cheapest source of such essential products as gasoline and lubricants.

If it is to be produced in excess today and to be burned under boilers in competition with coal, it cannot continue indefinitely to supply us adequate quantities of gasoline at reasonable prices. Therefore the public has a live interest in the conservation of oil and the control of production.

Late Fields

OKLAHOMA

The St. Louis Pool purchased 126,884 bbls. from 211 wells on Tuesday morning of this week. In the Maud district the Amerada Petroleum Corp.'s No. 1 Goslin in Section 8-8-5 swabbed 255 bbls. from Simpson sand and flowed 460 bbls. from the Misener sand. It has a total depth of 4,310 feet. The Barnsdall Oil Co.'s No. 2 Fife in Section 14-8-5, has 2,000 feet of oil in the hole from Wilcox sand at 4,254-85 feet, and will probably be put on the air lift.

On the east side of the Maud Pool the Shafer Oil & Refining Co.'s No. 1 Weaver in Section 12-8-5 is swabbing a little oil and mostly water from a total depth of 4,280 feet. The water appeared to be exhausting at last reports.

In the Wilcox sand section of the pool the Gypsy Oil Co.'s No. 1 Fife in Section 14-8-5 is shut down in the Wilcox sand at a total depth of 4,438 feet with 700 feet of water in the hole. The Prairie Oil & Gas Co.'s No. 1 Mitchell in Section 15-8-5 had the Simpson sand at 4,125-73 feet, with nothing showing, and the well flowed 90 bbls. from the Misener sand, the oil coming between the 6-inch and 8-inch casing.

The Sun Ray Oil Co. and the Cal-Cul Oil Co.'s No. 1 Davis, in Section 19-8-5, has some oil in the Hunton lime found at 4,125-45 feet, and the well is shut down for pipe-line concessions. T. B. Slick's No. 1 Villines in Section 20-8-5 is caving badly in the Simpson sand at a total depth of 4,340 feet, and the owner will run 6-inch casing to shut off the cave.

In the south end of the Little River Field T. B. Slick's No. 2 Wood in Section 26-7-6, flowed 300 bbls. from the Gilcrease sand at a total depth of 3,227 feet. This is the first Gilcrease sand output for this section.

KANSAS

The Kansas fields' late news bristled with showings in several parts of the State. In Sedgwich County, T. B. Slick, Inc., and O. J. Connell of Eldorado, Kans., have a new condition in their No. 1 Cross, NE cor. NE Section 27-25-1w. This well had a good showing of oil in the Kansas City formation at 2,690 feet and this horizon was drilled to 2,707 feet. The 6-inch casing was set at 2,955 feet, and the well was making some oil between the 6 and 8-inch pipe. It has now made a good flow through the 6-inch pipe, and there is a possibility it has encountered a new pay formation. The owners are making tests to determine the origin of the oil.

The Mary Jane Oil Co.'s No. 1 Fitch, NW cor. SE SW Section 6-26-1e, made 1,708 bbls. in 22 hours by swabbing and flowing from a sand found 3,378-82 feet. This well has extended the Wichita oil pool to the northeast.

The Derby Oil Co.'s No. 1 Cross, in Section 17-14-19w, had a small show of oil at 3,829 feet, and the owners set pipe and are waiting for cement to set.

Empire Gas & Fuel Co.'s No. 1 Wann, NE cor. NE Section 21-12-19w, had a show of oil at 3,558-60 feet and was drilled to a total depth of 3,565 feet. The owners are trying to set a packer.

In the northeast part of the Sedgwick operation, the Marland Production Co.'s No. 1 Goodrich, in Section 16-25-1e, bailed 4½ bailers of water off the bottom of the hole, and after that the well swabbed 160 bbls. of oil, and then began flowing 115 bbls. an hour without any trace of water for the first hour and one half.

MICHIGAN

MUSKEGON, Mich., Jan. 8.—A good show of oil has been encountered in the Lima Oil Corp.'s wildcat well on the property of State Senator Orville E. Atwood in Newaygo County, it was revealed today. Oil was struck in the upper Traverse formation last week at a depth of 2,087 feet. Operations were suspended immediately and the well was shut in. Field tanks will be set this week and the well will be drilled in Friday, according to present plans. The Atwood wildcat well is located eactly 17 miles northeast of the discovery well of the Muskegon Field and will be the greatest new development in the oil industry of western Michigan if it proves to be successful.

The top of the Traverse formation was struck at 2,070 feet. Surface elevation is 617 feet above sea level compared with the discovery well in the Muskegon Field on which the elevation was 1,628 feet, the top of the Traverse being struck in the discovery well at 1,620 feet and the well brought in at 1,658 feet.

The territory near the Atwood well is being scoured for leases, although the Lima Oil Corp. holds the rights on about 15,000 acres and the Newaygo prospecting Co. on another 20,000 acres in the vicinity.

BLACKWOOD MADE PRESIDENT

At a special meeting of the board of directors of the Sullivan Machinery Co., in Boston, Mass., Arthur E. Blackwood of Chicago was unanimously elected president, succeeding the late Frederick K. Copeland.

Mr. Blackwood has been with the Sullivan Machinery Co. for 32 years, coming to the company shortly after graduating at Toronto University as a mechanical and electrical engineer.

Pennsylvania Grade Oils Receive Another Substantial Advance

A general 25-cent advance in the market price of Pennsylvania grade crude oil was posted by the Joseph Seep Purchasing Agency on January 4. This brings the price of Allegany and Bradford Field credit balances to $4.10 per barrel and other Pennsylvania grade crudes produced in western and northwestern Pennsylvania to $4 per barrel; southwestern Pennsylvania, $3.90 per barrel; West Virginia, $4 per barrel; southeastern Ohio, $3.85 per barrel. No change was made in the price of Corning, Ohio, Cabell, W. Va., Somerset, Ky., or Ragland, Ky., oils, all purchased by the Seep agency.

Since January 1, 1927, the following advances have been made in the prices offered for Pennsylvania grade crude:

Allegany, N. Y., from $2.80 to $4.10, or $1.30.

Bradford, Pa., from $2.80 to $4.10, or $1.30.

Other western and northwestern Pennsylvania crude from $2.65 to $4, or $1.35.

Southwestern Pennsylvania crude from $2.60 to $3.90, or $1.30.

Southeastern Ohio from $2.35 to $3.85, or $1.50.

West Virginia from $2.65 to $4, or $1.35.

Within the same period Corning, Ohio, was advanced from $1.55 and $1.45 to $1.90 and $1.80; Cabell, W. Va., from $1.50 to $1.90; Somerset, Ky., was reduced from $1.60 to $1.55, and Ragland, Ky., remained unchanged.

As The Oil and Gas Journal has said on the occasion of each advance in the price of Pennsylvania grade oil in the past year, the cause can be attributed to the increasing demand for Pennsylvania grade lubricating oil brought about by consistent national advertising. There is a limited supply of crude oil of this particular grade, between 60,000 and 65,000 bbls. per day, of which over one-third comes from the Allegany-Bradford area in the extreme northern part of the old Eastern Field. On top of the posted price premiums are paid by some independent refiners.

CONTINUAL WEAKNESS SHOWN IN GASOLINES

(Continued from Page 28)

finery gasoline situation just as the October report did a month ago.

Mid-Continent Refinery Operations
(Data given in thousands of barrels)

	Gasoline			
	Production November		Stocks November 30	
	1928	1927	1928	1927
Oklahoma	5,111	4,575	2,657	2,528
*Texas	1,641	1,316	768	700
N. La., Ark.	586	395	163	92
Total	7,338	6,286	3,588	3,320
Ttl. United States	33,218	28,558	29,075	30,401

For the country as a whole gasoline stocks on November 30 were less than on the same date in 1927 and in the Mid-Continent the increase is slight. The danger as pointed out by market observers does not lie in the present gasoline stocks, but in the high rate of gasoline production, which if not curtailed will result in excessive stocks by late spring.

As shown in the table, every Mid-Continent refining group in November produced more gasoline than during the same period in 1927, the increase for the entire area being 16.7 per cent greater. The same trend is apparent in the remainder of the United States, the November, 1928, output being 16.3 per cent greater than during November, 1927.

This large increase in output cannot be justified by consumption requirements which continue to show about a 10 per cent increase over last year. This difference between the increase in output and demand is responsible for the price declines of the past 10 weeks in Oklahoma and other refining points with more serious consequences probable unless the supply situation is improved.

The weighted average prices on sales to jobbers as reported by representative refiners in Oklahoma are as follows: 58-60 437, 8.019 cents; 60-62 437, 8.25 cents; 60-62 400, 8.5 cents, and 64-66 375, 9.75 cents. As previously explained, some material is available under these prices. The 64-66 375 grade is freely available at 8¾ cents and a small shipment at 8½ cents basis North Texas for export was reported.

Exporters are keeping in close touch with the market, but so far their purchases have been light. The domestic business in the higher gravity gasolines has been slow during the past week. One reason for this condition is that most of the refiners are giving their U. S. Motor customers a much better grade than the government specifications require. The initial in many cases is around 100 degrees Fahrenheit, with a low 20 per cent point and an endpoint of 420 or less.

This gives the jobber an excellent winter motor fuel and he does not need to pay premium prices for the regular high gravity grades.

Kerosene and Distillates

Kerosene prices are off one-eighth cent. Oklahoma refiners are not alarmed about the kerosene situation. They feel that prices have held up remarkably well considering the season and they are looking forward to a strong spring demand starting late in February. Stocks in Oklahoma are normal.

The distillate movement is steady as are the prices. The particular customer who demands the best in regard to cold test, flash, odor and gravity must pay a premium of at least one-fourth cent to get the product he wants. In regard to cold test some of the West Texas distillates are a competitive factor. But the odor generally is bad and this had aided the Oklahoma refiners.

Blends

The blend market increases in activity. Some companies who do not ordinarily offer blends are willing to furnish the material at prices which are attractive due to the slump in the natural gasoline market and the fact that they have naphtha which has been moving slowly for the past few weeks.

Fuel Oils and Gas Oils

The Oklahoma situation in regard to fuel oil and gas oil is favorable. As soon as outside conditions justify, price advances are certain. Buyers have quit asking for price concessions and the market appears to be firm at present levels.

Lubricants and Wax

Steam refined cylinder stocks and bright prices were again advanced, the increases by individual refiners in most cases being 1 cent. The latest advance in Pennsylvania crude oil is interpreted as an additional bullish factor in the cylinder stock market. The demand for bright stocks is very strong. In obtaining the maximum yields of the bright stocks, at least two Oklahoma manufacturers have greatly reduced their yields of steam refined stocks. The 124-126 grade of wax was generally quoted at 5 cents during the week.

B. C. BELT TO HOUSTON; SUCCEEDED BY FUQUA

FORT WORTH, Tex., Jan. 5.—Ben C. Belt, one of the most widely known geologists in America and for three and a half years in charge of the Gulf Production Co.'s North and West Texas geological department, has been transferred to the home offices of the company at Houston. He is being succeeded in Fort Worth by H. B. Fuqua, his first assistant for the past three years.

Mr. Belt's recommendation is credited for the enormous leasing campaign made about three years ago by the Gulf company and by which blocks were taken northwest from Big Lake in Reagan County to the New Mexico line. As a result the Gulf company is strongly fortified in West Texas with crude reserves.

In this campaign the McElroy ranch was obtained and on it the Gulf has the greatest part of the Church & Fields Pool. Development of the acreage in West Texas has been only partial but the "play" placed the Gulf company as the ranking producer of West Texas. During the midst of the West Texas campaign the Gulf company made a similar play in the Panhandle.

During the Breckenridge boom, Mr. Belt was attached to the North Texas division of the Gulf Company but later went to Mexico and remained there some time. Later he returned as chief geologist in the North and West Texas division. Mr. Fuqua was formerly zone geologist in San Angelo, later in the Wichita Falls district and during the past three years first assistant to Belt in Forth Worth. Both men are graduates of the University of Oklahoma and enjoy a wide acquaintance in the Mid-Continent.

EAST CENTRAL TEXAS OPERATIONS ROUTINE

CORSICANA, Tex., Jan. 7.—With no completions to report, East Central Texas fields were generally featureless the past week. In Anderson County, at Boggy Creek, Humble Oil & Refining Co.'s field operations are best reflected as follows: Its No. 1 Charles Coleman is drilling in the Austin chalk at 3,453 feet; No. 1 P. A. Callier is in rock at 1,315 feet, and its No. 1-B A. E. Todd is in hard shale at 2,836 feet. Humble's No. 3 Lizzie Smith is rigging, while its No. 1 Neches River Stateland is rigging pile-driver and setting up boilers. Over on the northeast flank of the dome, in Cherokee County, Humble's No. 4 Weinberg is drilling in broken lime at 3,664 feet.

Daily average production during the past week follows:

East Central Texas

Boggy Creek	2,224
Cedar Creek	195
Currie	535
Mexia	6,188
Minerva	720
Nigger Creek	460
Powell	9,615
Richland	480
Thrall	35
Wortham	1,525
Total this week	21,977
Total last week	22,964
Decrease	987

OPERATORS RECOMMEND INCREASE FOR YATES

FORT WORTH, Tex., Jan. 7.—West Texas production will probably swing upward to around 400,000 bbls. daily by the middle of January as a result of the proposal of the Yates Pool Advisory Committee to increase production of Yates to 100,000 bbls. daily.

The committee held a meeting in Fort Worth and recommended the Railroad Commission increase the allowed production from 72,500 bbls. to 100,000 bbls. daily effective January 16. A public hearing will be held before the Railroad Commission. There is little likelihood of the recommendation being seriously contested.

With the increase in Yates the three restricted areas of West Texas would be allowed to produce 310,000 bbls. daily. Hendricks leads with an allowed production of 175,000 bbls. daily; Yates is next with 100,000 bbls.; the Roberts Pool in Howard County closes the rank with an allowed production of 35,000 bbls. The remaining fields in West Texas are estimated to have a daily production of around 90,000 bbls. at that time.

WIDELY KNOWN SUPPLY MAN TAKEN BY DEATH

William E. Frick, president of the Frick-Reid Supply Corp., Pittsburgh, Pa., and Tulsa, Okla., died Tuesday, January 8, in his home in Sewickley, a Pittsburgh suburb. Death was caused by pneumonia, following influenza.

Mr. Frick, who was 67 years old, established the Frick & Lindsay Co. in 1892. The company made supplies for oil and gas wells, mines and mills. In 1905, with the late Joseph Reid, of Oil City, Pa., he formed the Frick-Reid Supply Co. In 1928 these two concerns were

William E. Frick

consolidated into the Frick-Reid Supply Corp. Before entering the supply business on his own account Mr. Frick for years was associated with John A. Roebling's Sons Co., wire rope manufacturers. This company had a financial interest in the Frick & Lindsay Co. and Mr. Frick himself throughout the remainder of his business life was peculiarly interested in developments in wire rope manufacture.

Mr. Frick was active in civic and social affairs. He was a director of the Bank of Pittsburgh National Association and other Pittsburgh financial and business institutions. He leaves his wife and one son, R. T. Frick, of Sewickley, treasurer of the Frick-Reid Supply Corp.

DEATH OF MRS. DELCUZE

The Houston, Tex., oil fraternity was much grieved over the death of the mother of L. E. Delcuze, assistant to the vice president of the Gulf Production Co., and F. P. Delcuze of the land and scouting department of the Gulf.

REDUCTION IN CRUDE RUNS TO STILLS

(Continued from Page 33)

REFINERY OPERATIONS IN KANSAS
(Plants which have been in operation during the past year)

Name and location—	Daily capacity	Runs Jan. 1	Runs Dec. 1
Barnsdall Refineries, Inc., Wichita	4,000	2,500	2,500
Derby Oil Co., Wichita	6,000	4,000	4,000
Derby Oil Co., Russell	2,500	(*)	(*)
Eldorado Refining Co., Eldorado	3,500	2,200	2,200
Golden Rule Refining Co., Wichita	1,500	800	1,000
Hutchinson Oil Refining Co., Hutchinson	1,500	(*)	1,000
Kanotex Refining Co., Arkansas City	10,000	3,300	5,000
Manhattan Oil Co., Kansas City	6,000	2,400	5,000
Miller Petroleum Co., Humboldt	2,000	(*)	(*)
National Refining Co., Coffeyville	6,500	6,000	6,000
Peerless Oil Refining Co., Chanute	3,000	1,600	1,800
Shell Petroleum Corp., Arkansas City	22,000	20,000	20,000
Sinclair Refining Co., Coffeyville	10,000	7,500	9,500
Sinclair Refining Co., Argentine	9,500	8,500	8,500
Skelly Oil Co., Eldorado	23,000	10,800	11,500
Standard Oil Co. of Kansas, Neodesha	12,000	10,000	10,000
Vickers Petroleum Co., Potwin	3,500	2,000	2,000
White Eagle Oil & Refining Co., Augusta	10,000	7,000	8,000
Wilhoit Refining Co., Joplin	1,500	700	700
Total	136,500	90,300	98,700

*Shut down.

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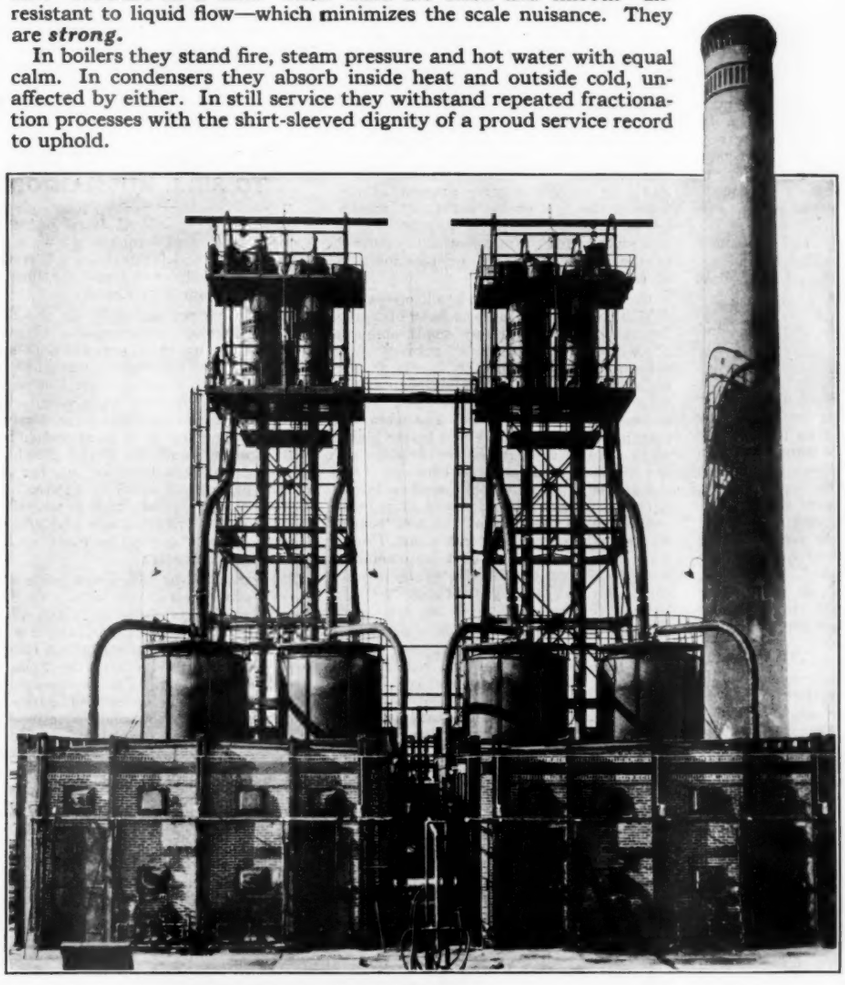

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Of Interest to Sales Departments

Quick Turnover to Cash Sales Should Be Marketing Aim

By C. E. Woodbridge
Treasurer, The Texas Company

This is an age of speed. We have seen it in our express trains, our ocean liners, our automobiles, and now we have the airplane.

This desire for speed is felt throughout our commercial activities; in the increased use of telephone, telegraph, and air mail, in the more rapid conversion of raw materials into marketable products, in quicker deliveries—and finally in the speeding up of the turnover from product delivered to funds concentrated in banks of deposit.

The men on the firing line of our marketing organization, the truck drivers, the agents, and the salesmen and selling representatives are playing such a large part in the speed of turnover from product to cash, that I speak particularly to them.

The dollars we are spending are disbursed for:

Investment, crude oil and disbursements of the producing organizations.

Transportation, including pipe line, marine and rail freights.

Refining.

Marketing, including advertising and truck deliveries.

Gasoline and other taxes.

Miscellaneous items.

The dollar which is resting is loafing and there is no place for loafers in our business. The dollar has no feelings but if it had it would only be happy when in motion, and those who direct it must see that it is kept constantly on the move.

With the first dollar spent for the payroll of the drilling crew, cash capital becomes imprisoned. It is released only when the sale is made, the collection secured, and the money banked.

It is with this last phase of the conversion of product sold into dollars banked that the treasury department is particularly concerned.

Let us follow through a delivery of gasoline. The quickest turnover results from cash upon delivery, but even here currency will flow more quickly than a check, for a check will have to travel to the bank on which it is drawn and the credit travel back to our local bank before the dollar can join the stream flowing towards the main reservoirs at our home offices.

Credit Sale

If, however, the sale is made on credit the dollar has not even started yet. If the terms are payment for the last load when the next one is delivered, there will be a delay of from three days to a week, and the longer the terms of payment the longer the time to the date of the theoretical start. "Theoretical" is used advisedly for even when the dollar is due to start it frequently gets its feet stuck in the mud and has to be pried loose. At this stage it is known as a receivable and while it is quite fresh it has only an "X" mark, but as it gets older it acquires a

(Continued on Page 146)

STANDARD BUYS STATIONS

The marketing properties of the Dutee W. Flint Oil Co. of Providence, R. I. have been purchased by the Standard Oil Co. of New York. The properties include 37 stations in Rhode Island and Massachusetts.

MONTANA DEALERS

Montana has 2,071 distributors of gasoline and other petroleum products according to the November report of the State Public Utilities Commission.

GASOLINE TAX IN SOME STATES 25 PER CENT OF CONSUMER PRICE

The Lamp, Standard Oil Co. of New Jersey

In 45 states of the Union the motorist pays a consumption tax with each purchase of gasoline. In one of three remaining states, Illinois, legislation imposing this tax was enacted and for a time was in force, but was afterwards declared unconstitutional. Only New York and Massachusetts have felt that the oil business is sufficiently taxed by the heavy payments made upon its realty and equipment.

With the theory of a consumption tax equitably levied few economists take issue. It is the fairest of all assessments, because it is paid in proportion to the spending ability of the citizen. Mechanical reasons connected with the difficulty of its collection have hitherto prevented the States from broadcasting its application, although the Federal Government has long derived a large amount of its income through excise taxes. It would be an extremely difficult matter to collect revenue for the state on sales of most of the common articles or commodities of commerce.

Gasoline, on the other hand, offers no difficulties to state enforcement officers. By making the relatively small number of wholesale distributors account for sales and the collection of the tax the legislators found an easy and inexpensive way of increasing public revenues. They reasoned along these lines: The motorist demands and needs more and better highways than were required in the days of the bicycle and horse and carriage. As the owner of an automobile used in large part for pleasure he can well afford to contribute to the cost of the new roads whenever he buys fuel for his car. Those who are too poor to own automobiles will thus have the benefit of improved roads without adding to their cost of living.

Under that plan thousands upon thousands of miles of wonderful new highways have been laid out and constructed in recent years. They have been paid for largely through sales of bonds issued in anticipation of gasoline taxes. Commerce has been speeded up, passenger transportation enlarged and bettered (through motor coaches for those who do not own cars), and the enjoyment and comfort of living increased. The motorist has rarely raised his voice in protest against the tax, feeling probably that the road improvement is worth its cost to him.

Danger of Abuse

No power of government is more easily abused or contains wider opportunities for favoritism than the right to levy taxes. The politically-minded legislator approaches every taxation measure with the thought of its influence upon his popularity in office. This has been most clearly reflected in the course taken by taxation of personal incomes. The wealthy being but a small minority of

(Continued on Page 146)

FORM FRENCH COMPANY TO SELL RUSSIAN OILS

WASHINGTON, D. C. Jan. 5.—A new company called "Petronaphte" with an initial capital of 1,000,000 French francs has been formed for the sale of Russian petroleum products in France.

This new company will not conflict with the previous arrangements between the Russian naphtha organization and the "Petrofina Francaise" whereby the latter bound itself to take specified quantities of Soviet products each year in exchange for exclusive agency for France. The new company is a joint subsidiary of "Petrofina" and the Soviet Naphtha Syndicate and has been set up for the express purpose of relieving "Petrofina" of the obligation of taking unlimited quantities of lubricating oils and greases so long as such quantities come within the annual contract.

The current situation, which loaded up the French "Petrofina" with unsalable quantities of heavy oils and inadequate quantities of light products, appears to have been created by the Russian efforts to deliver light products to the Spanish petroleum monopoly. The Soviet organization having thus become obligated to the French agents, because of failure to deliver quantities of salable products called for by the contract, has been compelled to adopt the compromise measures above outlined.

OLD-FASHIONED TANK WAGON STILL IN USE

—From Ewing Galloway, N. Y.

Petroleum seller with his two-horse tank wagon on outskirts of Bucharest, Rumania.

ADVERTISING FLURRY ON PREMIUM GASOLINE

NEW YORK, Jan. 5.—The trade here is watching with considerable interest the advertisements of a few of the larger refining and marketing groups on their premium gasolines.

Several weeks ago Tide Water came into the market with a new gasoline, emerald green in color, claiming for this new "Hi Test Tydol" about everything that had previously been claimed for other special motor fuels. The new Tide Water product is being sold at the same price as regular tank wagon qualities of other refiners, whereas other marketers, claiming no more for their premium motor fuels than Tide Water does for its "Hi-Test" product, market them at 3 cents a gallon higher.

Following the Tide Water announcement of its new product, Cities Service carried display advertising announcing that it was the maker and marketer of the original green gasoline, "Koolmotor."

There the situation rested until the middle of the current week when Standard Oil Co. of New York ran page advertisements in leading dailies. The Standard of New York ad sympathized with the "poor motorist" who was beset with gasoline of all the hues of the rainbow, and for which everything and anything was being claimed. The advertisement asked "Whither is the motorist to turn," and answered its own question by suggesting that he turn to Socony Special.

Two days later, Tide Water carried large advertisements in the daily papers declaring that "Antiknock, superpower, superior quality, instant starting, double acceleration, high test, no extra cost, and mileage" explained why "all roads lead to the Tydol pump."

INFLUENZA OUTBREAK BOOSTS PETROLATUM

NEW YORK, Jan. 5.—It is a far cry from an oil refinery to a sick bed but the recurrence of the influenza outbreak in various parts of the United States during recent weeks has had a direct bearing upon the consumption of petrolatum.

Reports from refiners and sales agents indicate that consumption of petrolatum by the pharmaceutical industry this year has set new records, with present conditions indicating a continuance of this demand well into the new year.

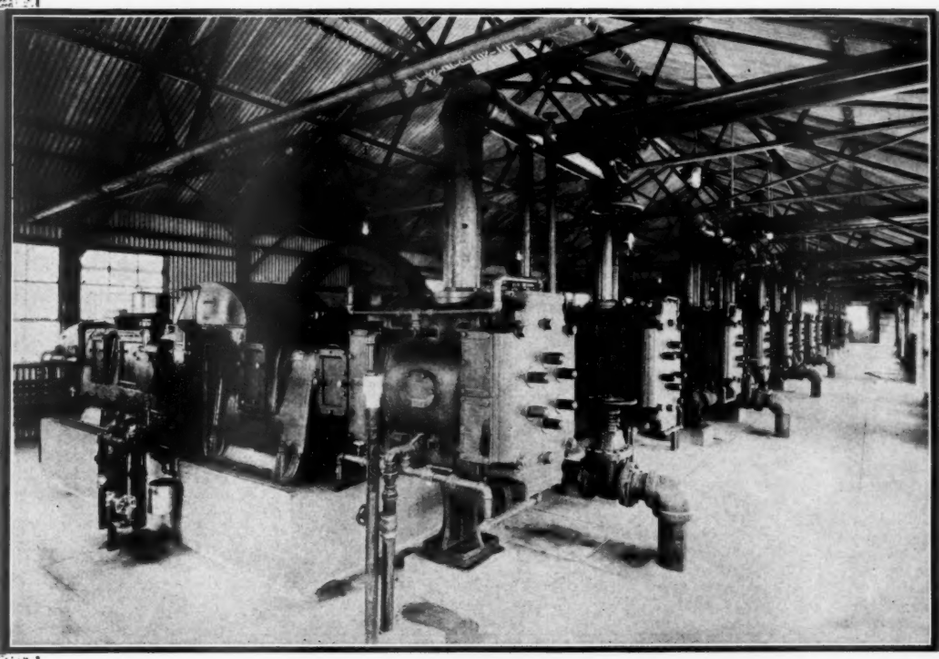
White petrolatum is largely used as a vehicle for the various popular "rubs" and salves used as counter-irritants and in other phases of the treatment of colds, the widespread scare over the prevalence of influenza in some sections of the country has brought about a sharp jump in the consumption of these home remedies, and manufacturers of the pharmaceuticals have consequently stepped up their production to meet this demand.

Normally, makers of these salves and lotions cover their season's requirements for petrolatum by contracts placed during the fall months. This was done as usual this year, but the unexpectedly heavy demand for the pharmaceutical products has forced manufacturers back into the petrolatum market with repeat orders. Prices for white grades of petrolatum have advanced fractionally within recent weeks, due entirely to this stimulated demand.

BUYS MONTANA STATIONS

The Hughes Oil Co., which is a marketing subsidiary of the Midwest Refining Co. operating in Montana, has purchased six bulk stations and two retail stations of the Users Oil Co., Missoula. The Hughes company has greatly enlarged its market outlets in Montana during the past year.

Buy for the Future as well as Today



Gray County Plant of The Wilcox Oil & Gas Co. of Texas, at Pampa, Texas, where Bessemer Type Ten Compressors perform in their regular 99% + manner.

IN SELECTING your oil field power equipment, consider future performance as well as today's needs. Each additional year of performance, every extra hour of service-free running time, means a greater return on your initial investment.

Bessemers will give you these extra years of service-on-the-job; time has proved it. Long after many others have been worn out and discarded you will find Bessemers still doing a full day's work—still turning out their typical 99% + running time. Thousands of Bessemers are in their second decade of service—and hundreds are in their third. This is your assurance that when you buy a Bessemer you buy for tomorrow as well as today.

BESSEMER ENGINE COMPANY
52 York Street ∴ Grove City, Pa.

BESSEMER

Mechanical Filter—Aids in Refining

Varied Uses in Removal of Suspended Impurities in Refinery Products. Has Application in Dewaxing Oils

By Arthur Elsenbast and Fred L. Horine*

For many years the mineral oil refiner has used in his filtering processes such granular or finely powdered materials as fullers earth, acid clays, etc., for the purpose of bleaching. Changes in refining processes have brought about the necessity for actual physical clarification by the removal of suspended impurities. Materials used for this purpose may be termed "mechanical filter-aids." These products are manufactured from diatomaceous silica. They differ essentially from materials used for bleaching in that they are chemically inert.

Diatomaceous silica filter-aids are produced in three distinct grades, giving different rates of flow.

The original diatomaceous silica filter-aid (filter-cel) is composed principally of amorphous silica, containing approximately 89 per cent of Si_4O_2, with about 4 per cent of combined water and 5 per cent of free moisture. The two other grades, standard super-cel and hyflo super-cel, are specially processed to give higher rates of flow than are obtained with filter-cel. These special grades are practically "bone dry" and contain approximately 95 per cent Si_4O_2. These materials do not react chemically with the oils. They do adsorb to a small extent but in most cases this action is negligible due to the small quantities which are used. Their primary function is to build a porous film against a retaining medium for the removal of turbidity, water, acid or salt solutions, wax, etc., in the manner described below.

The physical differences in the particle size of these three materials are microscopic. When clean water or clear oil is pumped through these three filtering materials under the same conditions the rates of flow will be in the proportion of one for filter-cel, 2½ for standard super-cel and 5 for hyflo super-cel.

Any of the above three materials, when made into a slurry and pumped into a filter press, will form a cake weighing approximately 20 pounds per cubic foot. It is apparent that, with the material having a true specific gravity of 2.1, or 130 pounds per cubic foot, approximately 85 per cent of the total cake volume consists of air spaces. As these three filter-aids are powders, the bulk of which is composed of particles smaller than 200-mesh, the air spaces in the cake consists of continuous capillary channels, infinitesimal in size.

In many cases it is advisable at the beginning of the filtration operation to establish a film or "precoat" of the pure filter-aid on the filter cloth. A liquid passing through such a film has been given a screening through a mesh infinitely finer than the finest wire or silk cloth. To form a film or filter-aid approximately one-eighth inch thick on a filter surface it is necessary to use about 15 pounds of the filter-aid per 100 square feet of filter area. For such a precoat on a commercial filter press with 600 square feet filter area it would therefore require 90 pounds of filter-aid.

Removal of Turbidity

For the removal of turbidity these materials act in the following way: A small amount of the filter-aid is added to the oil. The quantity of filter-aid may vary from 100 per cent to 300 per cent on the weight of the solids to be removed, or from 0.1 per cent to 2 per cent on the weight of the oil. The oil is thoroughly agitated to insure uniform distribution of the filter-aid, and then pumped through the filter press. The powder in suspension bridges the openings in the filter cloth, the cloth serving solely as a retaining medium. The cellular film which is built up in this way acts as a trap for the turbidity and yet allows the clarified oil to pass through. Because of the porosity of the filter cake, pump pressures can be kept at a minimum.

Without a filter-aid the impurities either pass through the cloth, or, if the suspended particles are of a slimy nature, they soon smear the surface and completely seal the flow channels. The effect of the filter-aid is to lengthen the cycle of the filter and to insure perfect clarification from the beginning to the end of the operation.

The primary functions of filter-aids in the mineral oil industry are as follows:

1. The removal of turbidity, suspended salt, wax, small amounts of moisture, etc., by incorporation in a filter-aid cake.
2. The surface tension effect of breaking emulsions by passing through a filter-aid film.
3. Protection of the cotton, wool or metal filter fabric from the corrosive action of acids and the scaling effect of clays on steaming out of cakes.

In the refining of petroleum there are a number of operations in which diatomaceous silica filter-aids are now being used.

Breaking of Emulsions

When petroleum emulsions are filtered through a film of super-cel which has previously been deposited upon the cloths by passing through the press a suspension of super-cel in clean oil or water, the emulsion is completely broken and the separation of oil and water in the filtrate is practically immediate. The use of super-cel in breaking emulsions is applied both to crude oils and to the various emulsions which are at times unavoidably produced at the refinery. Crude oils containing salt in either the solid or liquid phase, can be desalted. Should the emulsion contain slimy suspended matter, it may be necessary to use some super-cel in the emulsion itself in order to maintain a good rate of flow for long periods.

The pores in the filter-aid film are so minute in size that the oil water emulsion is torn apart by passing through the fine capillary channels; both the oil and water passing through the film to appear on the filtrate side of the cloth as drops of water and drops of oil. The drainage surfaces of the press are so arranged that there will be a minimum amount of rolling after the emulsion has passed through the film. The filtrate from the press is collected in storage tanks where it is held under pressure. The water and oil separate perfectly in this tank.

Either standard super-cel or hyflo super-cel may be used for this work. In most cases hyflo super-cel is used as it gives the faster rate of flow. In cases where the emulsion is particularly difficult to break, standard super-cel, or a mixture of standard and hyflo super-cel is used.

The cost of the filter-aid and labor required for this emulsion breaking operation depends entirely upon the type of oil. In many cases a 600 square foot press will produce from 1,200 to 1,500 bbls. of dried oil in 24 hours using the labor of one operator. The rates of flow will vary from 0.1 to 0.5 bbl. per square foot of filtering area, per hour. The cycle time varies according to the oil from less than a day to several weeks, the average being several days. The super-cel consumption will vary from 0.01 to 0.1 per bbl. of dry oil recovered.

Dewaxing

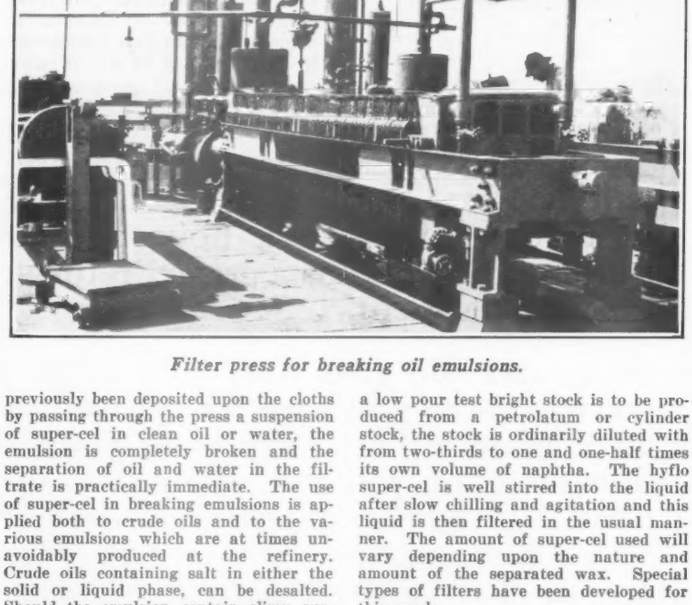
Hyflo super-cel is used to facilitate the removal of amorphous wax or wax which is difficult to remove by ordinary filtration methods. Both the quantity and quality of the oil is conserved by not rerunning portions of the wax distillate, though the wax is then more difficult to filter. When it is desirable to cut deeply into a still charge, the wax in the distillate is ordinarily difficult to filter.

In the case of long residuum or where a low pour test bright stock is to be produced from a petrolatum or cylinder stock, the stock is ordinarily diluted with from two-thirds to one and one-half times its own volume of naphtha. The hyflo super-cel is well stirred into the liquid after slow chilling and agitation and this liquid is then filtered in the usual manner. The amount of super-cel used will vary depending upon the nature and amount of the separated wax. Special types of filters have been developed for this work.

The cake formed on the cloth is washed in the filter with cold naphtha to displace the bright stock. The cake from the filter will consist, therefore, of a mixture of wax and super-cel wetted with naphtha. This cake is removed from the filter, heated, and repuddled in fresh naphtha. The only solid then present is the super-cel which can be filtered out and washed with warm naphtha in a small auxiliary filter.

The hyflo super-cel cake from this filter is then returned for reuse in a second batch of chilled stock. The bright stock filtrate is reduced. The filtrate secured from the original washing of the cake with cold naphtha can also be reduced or it can be recycled by using it to thin fresh stock. The wax-naphtha solution is reduced for a high M.P. wax or petrolatum.

By this method, refrigeration and reducing costs are lower due to less naphtha being in process and any proportion of wax in oil can be handled. Bright stock yield is highest.



Filter press for breaking oil emulsions.

Bleaching

Hyflo super-cel is not a bleaching agent. If differs from fullers earth in that it has no chemical action in the oil. However, it is used with the bleaching agent in the bleaching operation to obtain certain secondary though highly important results.

One of these uses is in connection with the so-called contact bleaching process, wherein bleaching is accomplished by mixing finely divided clay or fullers earth in the oil, the bleaching material being later removed by filtration through a pressure filter. A Sweetland filter, with metal cloth, is usually used for removing the clay. The operation can be greatly facilitated by first pumping through the filter a suspension of hyflo super-cel in previously filtered oil. Approximately 5 pounds of hyflo super-cel per 100 square feet of filter area are required for this purpose. The main batch of oil containing the clay is then pumped through the filter. (The tank containing the precoat mixture should not be allowed to empty before the main charge is admitted, or there will be a period when there may be no pressure upon the precoat film and it may slide from the cloth.)

This precoat of the porous super-cel particles prevents the impervious particles of fuller's earth from clogging the metal screen, which is especially important if the cake is later to be blown with steam. It prevents any particles of clay from passing through the cloth with the filtrate. It also makes the cake easy to remove from the cloths after filtration.

Sometimes it is necessary to add from 5 to 10 per cent of hyflo super-cel, based upon the weight of the clay used, to the bleached oil just prior to filtration. This serves to form an open, porous cake and allows the building of a thick cake without sacrificing rate of flow from the filter.

Often oils are acid treated and then clay is added, not for the purpose of bleaching but in order to remove the traces of acid and sludge not settled out of the oil. In these cases it will be found that filter-cel or hyflo super-cel is a much more efficient agent for the removal of acid and sludge than clay. Only about one-half as much super-cel is needed and there is less retention loss in the filter cake.

Pressure Still Residues

These vary a great deal in nature and often contain such solid suspended impurities as carbon, lime, calcium sulphide, etc., which are difficult to remove quickly. By filtration with the aid of hyflo super-cel the objectionable suspended solids can be removed and a satisfactory product obtained without delay. Such a filtered oil will meet specifications which cannot be met by the ordinary pressure still residue.

Dirty Oils

Using hyflo super-cel as a filter-aid, any oil containing objectionable solid suspended matter can be cleaned at small cost by filtration.

Reclaiming Oils

A small portable unit, consisting of a filter press and tanks, can be erected to reclaim used transformer and lubricating oils. By using oven dried filter-cel, transformer oils can be completely dried and clarified with this equipment.

On oils of this type one square foot of filter area will clean up approximately

(Continued on Page 146)

*Engineers, Celite Products Co., New York City.

NEW LOCATIONS IN TEXAS PANHANDLE AND NORTH AND WEST TEXAS FIELDS

TEXAS PANHANDLE

Carson County

Holmes and others' No. 1 J. K. Quinn, 330 feet north and west of the SE cor. of the SW of Section 7, Block 9, I.&G.N. Survey.

Gray County

Phillips Petroleum Co.'s No. 5 Johns, 330 feet north and 990 feet east of the SW cor. of the SW of Section 87, Block 3, I.&G.N. Survey.

Hutchinson County

Alamoso Oil Co.'s No. 3 J. M. Sanford, 350 feet north and 300 feet east of the SW cor. of the south 46 acres of the north 320 acres of Section 83, Block 46, H.&T.C. Survey.

Hartley County

Canadian River Gas Co.'s No. 10 Lee Bivins-A, 660 feet south and west of the NE cor. of Section 18, Block 2, G.&M. Survey.

Wheeler County

J. O. Whittington and others' No. 3 Williams & Laycock, 330 feet north and east of the SW cor. of the SW of Section 9, Block 27, H.&G.N. Survey.

NORTH CENTRAL AND WEST TEXAS

Archer County

Guy Braggett's No. 2 R. C. Kinder, 225 feet north and 325 feet west of the SE cor. of the north 30 acres of the east 50 acres of the south 100 acres of Section 63, Block 5, Clark & Plumb Subdivision. American Refining Co.'s No. 1 S. M. J. Benson, 1,250 feet north and 1,394.5 feet east of the SW cor. of Section 1,808, T.E.&L. Survey. C. W. Clark and The Texas Company's No. 1 Mrs. E. F. Watts, 450 feet south and 150 feet west of the NE cor. of Section 2,417, T. E.&L. Survey.

C. W. Gilliland's No. 2 Gus Symank, 650 feet south and 450 feet east of the NW cor. of Section 11, G. P. Meade Subdivision, L. M. Pasture Survey. L. V. Hull's No. 2 R. D. Andrews, 1,100 feet south and 2,025 feet east of the NW cor. of Section 1,399, T.E.&L. Survey. O. R. Jeffers and others' No. 1 G. B. Hamilton, 150 feet south and west of the NE cor. of the south 50 acres of the west 100 acres of the G. B. Hamilton 220.5-acre tract out of Section 6, B.B.B.&C. Survey, A-1,266. F. Parsons and others' No. 1 G. Williams, 150 feet north and east of the SW cor. of the north 120 acres of the M. L. Swing Survey, A-450.

Eastland County

L. Teatsorth and others' No. 1 N. N. Rosenquest, 1,550 feet south and 1,100 feet east of the most northerly northwest corner of the N. N. Rosenquest 553.6-acre tract out of Section 3, Block 6, E.T.R.R. Survey. Texas Pacific Coal & Oil Co.'s No. 4 fee, 11,924 feet south and 6,223 feet east of the northwest corner of the Robertson County School Land. Dixie Oil Co.'s No. 1 J. E. Chesley, 200 feet south and 560 feet east of the middle of the west line of Section 384, S.P.R.R. Survey. Y. L. Jones' No. 1 J. C. Gattis, 150 feet north and east of the SW cor. of the north 40 acres of the north 80 acres of the SW of Section 123, Block 3, H.&T.C. Survey.

Glasscock County

Charles Daniels and others' No. 1 J. W. Meek, 1,650 feet north and 2,310 feet west of the SE cor. of Section 7, Block 34, Township 3s, T.&P. Survey.

Howard County

Ward Oil Co.'s No. 4 Dora Roberts, 2,310 feet north and east of the SW cor. of Section 137, Block 29, W.&N.W. Survey.

Jack County

Petroleum Producers Co. and Bridwell Oil Co.'s No. 1 J. J. Sampley, 150 feet south and east of the northwest corner of the J. Sanders Survey, A-1,991.

Lynn County

H. F. Miller and others' No. 1 W. H. May, midway east and west and 500 feet north of the south line of Section 10, Block 7, E.L.&R.R. Survey, (shown as Mrs. P. Brown).

Pecos County

Pecos Valley Oil Co.'s No. 2 Pecos Valley Oil Co., 150 feet northwest of the southeast line and 150 feet northeast of the southwest line of Section 34, Block 3, H.&T.C. Survey. Trees Oil Co.'s No. 1 J. C. Trees, 330 feet southwest of the northeast line and 330 feet southeast of the northwest line of Section 63, Block 8, H.&G.N. Survey.

Shackelford County

Roeser & Pendleton's No. 32 W. I. Cook-A, Section 61, 1,940 feet north and 977 feet west of the SE cor. of the SE of Section 61, Block 10, E.T.R.R. Survey. Same company's No. 86 W. I. Cook-A, Section 60, 626 feet south and 450 feet east of the NW cor. of the SW of Section 60, Block 10, E.T.R.R. Survey.

Big State Oil Co.'s No. 1 E. A. Jetter, 150 feet north and west of the SE cor. of the SW of Section 15, Block 11, T. &P. Survey. Earl & Dull's No. 3 J. B. Matthews, 820 feet south and 150 feet west of the NE cor. of the SE of the NE of Section 32, Block 10, E.T.R.R. Survey. Ohio-Texas Oil Co.'s No. 10 J. B. Matthews, 490 feet south and 150 feet east of the NW cor. of the SW of the NW of Section 29, Block 10, E.T.R.R. Survey. Petroleum Producers Co.'s No. 2 W. Y. and R. A. Davis, 150 feet south and east of the NW cor. of the NW of the SW of Section 20, Block 13, T.&P. Survey.

Roeser & Pendleton's No. 4 W. I. Cook-A, Section 83, 1,245 feet south and 220 feet west of the NE cor. of the SE of Section 83, Block 10, E.T.R.R. Survey. J. G. Terry and others' No. 1 R. J. Moberley, 150 feet north and east of the SW cor. of the N half of the SE of Section 48, Block 11, T.&P. Survey, (shown as William Poindexter). J. G. Terry and others' No. 2 C. Flippin, 150 feet south and east of the NW cor. of the SE of Section 35, Block 11, T.&P. Survey.

Stephens County

F. C. Clark and others' No. 1 W. R. Creagh, 940 feet south and 300 feet west of the NW cor. of Section 7, Block 8, T.&P. Survey.

Tarrant County

A. W. Phillips and others' No. 1 J. H. Wright, 1,030 feet northwest of the southeast line and 1,000 feet southwest of the northeast line of the W. G. Logan Survey.

Winkler County

Gulf Production Co.'s No. 3 E. W. Cowden, 1,310 feet north and 330 feet east of the southwest corner of their 240-acre lease out of Section 3, Block B-12, School Land. Prairie Oil & Gas Co.'s No. 5 E. W. Cowden, 1,320 feet north and 990 feet east of the SW cor. of Section 3, Block B-12, School Land. Southern Crude Oil Purchasing Co.'s No. 2 T. G. Hendricks, T-89-J, 1,320 feet south and 330 feet west of the NE cor. of Section 9, Block B-12, School Land.

Wichita County

Gulf Production Co.'s No. 43 S. B. Burnett and others-A, Tract-B, 1,400 feet south and 569 feet east of the NW cor. of the E half of Section 4, H.T.&B. Survey, A-752. Magnolia Petroleum Co.'s No. 12 J. W. Donohoe, 150 feet south and 1,527 feet west of the northeast corner of the north 80 acres of the south 120 acres of the J. W. Robertson Survey, A-252. Same company's No. 4 S. George-K. & G., 810 feet north and 150 feet west of the southeast corner of the S. George tract out of the L. B. Taliaferro Survey, A-541. E. J. Stump and others' No. 1 W. H. Chilson, Section 9, 150 feet south and west of the NE cor. of the S half of the east 80 acres of Section 9, Denton County School Land, League 4, A-417.

Coleman & Coppock's No. 19 Kemp & Kempner, 700 feet north and 750 feet west of the southeast corner of their 26.66-acre lease out of Block 82, Kemp Wichita Valley Land. Continental Oil Co. and Hammond's No. 2 S. I. and H. M. Munger-A, 2,284 feet south and 533 feet west of the most northerly northeast corner of Block 31, Kemp Wichita Valley Land. G. M. C. Oil Co.'s No. 1 R. L. Crudup-B, 180 feet south and 160

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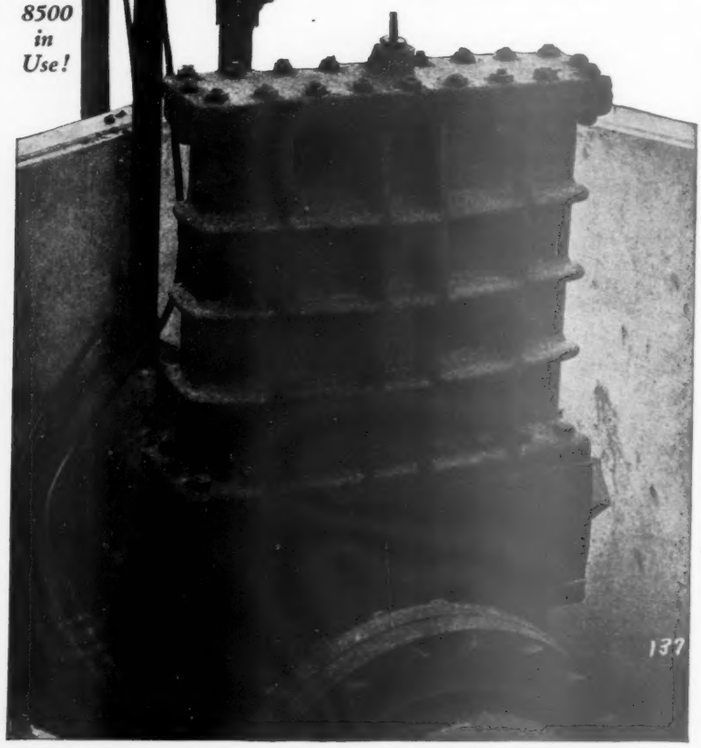

ROBINSON ORIFICE FITTING

feet east of the NW cor. of Section 10, Denton County School Land, League 4, A-417.

Hammon & Garrett's No. 5 S. H. McCarty-D, 750 feet south and 150 feet east of the northwest corner of the east 20 acres of the west 60 acres of the north 117 acres of the W. R. Eaves Survey, A-447. Same company's No. 6 S. H. McCarty-D, 750 feet south and 150 feet west of the northeast corner of the east 20 acres of the west 60 acres of the north 117 acres of the W. R. Eaves Survey, A-447. Hammon & Garrett's No. 6 S. Mitchell and others, 790 feet south and 150 feet east of the norwest corner of the J. T. Lewis Survey, A-460. Humble Oil & Refining Co.'s No. 6 W. H. Taylor, 453 feet south and 150 feet west of the northeast corner of Block 81, Kemp Wichita Valley Land. Panhandle Refining Co.'s No. 7 S. M. McCarty, 450 feet south and 150 feet east of the northwest corner of the S. M. McCarty 231.4-acre tract out of the Sam O. Fowler Survey, A-78.

Ryan Petroleum Corp.'s No. 105 G. L. Nance, 1,050 feet south and 530 feet west of the northeast corner of the G. L. Nance tract out of the Sam O. Fowler Survey, A-78. Same corporation's No. 106 G. L. Nance, 450 feet south and 1,900 feet west of the northeast corner of the G. L. Nance tract out of the Sam O. Fowler Survey, A-78. Staley & Wynne's No. 10 Kemp & Kempner, 150 feet south and east of the northwest corner of their lease out of Block 82, Kemp Wichita Valley Land. United Producers Co.'s No. 7 W. L. Hodges-A, 150 feet south and east of the northwest corner of Lot 9, W. L. Hodges Subdivision, Section 1, H.T.&B. Survey, A-139.

Wilbarger County

Fain-McGaha Oil Corp.'s No. 28 W. T. Waggoner-S, 692 feet south and 455 feet east of the NW cor. of the SW of the NE of Section 24, Block 4, H.&T.C. Survey. Same corporation's No. 29 W. T. Waggoner-S, 490 feet south and 450 feet east of the NW cor. of the SE of the NW of Section 24, Block 4, H.&T.C. Survey. Same corporation's No. 30 W. T. Waggoner-S, 300 feet north and 410 feet east of the SW cor. of the NW of the NE of Section 24, Block 4, H.&T.C. Survey. Same corporation's No. 1 W. T. Waggoner-DD, 150 feet south and west of the NE cor. of the S half of the NW of Section 39, M.E.P.&P. Survey.

Lewis Production Co.'s No. 3 W. T. Waggoner, 150 feet south and west of the NE cor. of the S half of the SW of the NE of Section 18, Block 4, H.&T.C. Survey. Phillips Petroleum Co.'s No. 1 Waggoner-Wag, 190 feet north and west of the SE cor. of the SW of the NW of Section 18, Block 4, H.&T.C. Survey. Phillips Petroleum Co.'s No. 2 W. T. Waggoner-Anna, 268 feet north and west of the SE cor. of the NE of the SE of Section 43, Block 4, H.&T.C. Survey. Shaw Oil Co.'s No. 2 W. T. Waggoner-E, 150 feet north and east of the SW cor. of the SE of the NE of Section 18, Block 4, H.&T.C. Survey.

Waggoner Refining Co.'s No. 3 W. T. Waggoner-K, 205 feet north and west of SE cor. of Section 31, Block 4, H.&T.C. Survey. Waggoner Refining Co.'s No. 4 W. T. Waggoner-K, 568 feet north and 205 feet west of the SE cor. of Section 31, Block 4, H.&T.C. Survey. Waggoner Refining Co.'s No. 1 W. T. Waggoner-M, 150 feet north and east of the SW cor. of the N half of the SE of the NE of Section 18, Block 4, H.&T.C. Survey.

Yoakum County

Weekley Oil Corp. and others' No. 1 R. L. Knight, C of NW of Section 791, Block "D," John H. Gibson Survey.

Young County

Holbrook & Wood's No. 6 R. L. Watson-B, 150 feet north and 360 feet east of the SW cor. of the NE of Section 22, Young County School Land, A-1,284. A. Hurst and others' No. 1 W. R. Drum, 225 feet south and 1,400 feet west of the northeast corner of the J. W. Paddock Survey, A-1,625. A. W. Johnston's No. 1 J. W. Casey, 150 feet south and east of the NW cor. of the south 90 acres of Section 1,396, T.E.&L. Survey.

C. Kleiner and others' No. 9 J. H. Davis, 150 feet north and 1,950 feet west of the SE cor. of Section 1,487, T.E.&L. Survey. W. M. Meredith's No. 1 J. A. Simmons, 1,150 feet north and 950 feet west of SE cor. Section 1,994, T.E.&L. Survey. J. B. Nix and others' No. 1 C. Y. McDonald, 150 feet south and east of the NW cor. of the north 66.25 acres of the W half of Section 1,913, T.E.&L. Survey. Prairie Oil & Gas Co.'s No. 5 C. F. Kunkel, 1,165 feet north and 450 feet east of the SW cor. of the SE of Section 4, B.B.B.&C. Survey, A-1,701.

R. R. Rhodes and others' No. 1 E. M. Eichelberger, 872 feet south and 1,057 feet east of the NW cor. of Section 1,470, T.E.&L. Survey. M. Richards and others' No. 3 R. Campbell, 150 feet north and 50 feet east of the SW cor. of Section 1,389, T.E.&L. Survey. E. R. Riggs and others' No. 9 O. L. Sweet, 450 feet south and 2,300 feet west of the NE cor. of Section 1,488, T.E.&L. Survey.

E. R. Riggs & Oliphant's No. 1 O. L. Sweet, 150 feet south and west of NE cor. of the west 65 acres of Section 1,488, T.E.&L. Survey. A. Strachen's No. 1 R. A. Dunan, 460 feet north and 900 feet east of the SW cor. of the west 40 acres of the south 100 acres of Section 1,998, T.E.&L. Survey. Wooten & Reed's No. 1 E. M. Eichelberger, 150 feet south and west of the NE cor. of Section 1,472, T.E.&L. Survey. B. Fultz and others' No. 1 J. J. Scott, 858 feet north and 5,872 feet east of the SW cor. of the William Johnson Survey, A-159, being 200 feet north and 300 feet west of the southeast corner of their 80-acre lease.

Paull Oil Co.'s No. 5 J. A. Allen, 650 feet southwest of the northeast line and 250 feet southeast of the northwest line of the J. A. Allen 156-acre tract out of the N. Lynch Survey, A-171. Same company's No. 6 J. A. Allen, 200 feet southwest of the northeast line and 200 feet southeast of the northwest line of the J. A. Allen 156-acre tract out of the N. Lynch Survey, A-171. Same company's No. 3 W. H. Thompson, 650 feet southwest of the northeast line and 250 feet northwest of the southeast line of Section 2,692, T.E.&L. Survey, A-1,131. Same company's No. 4 W. H. Thompson, 200 feet southwest of the northeast line and 200 feet northwest of the southeast line of Section 2,692, T.E.&L. Survey, A-1,131.

Corrected Locations

Hutchinson County—Phillips Petroleum Co.'s No. 1 J. M. Sanford-Andorf, 330 feet north and 990 feet west of the SE cor. of the north 80 acres of Section 80, Block 46, H.&T.C. Survey.

Howard County — Witherspoon and others' No. 1 Kloh & Rumsey, 330 feet north and 2,970 feet east of the SW cor. of Section 3, Block 32, Township 2s, T. &P. Survey. Ward Oil Co.'s No. 3 Dora Roberts, 2,290 feet north and 330 feet east of the SW cor. of Section 137, Block 29, W.&N.W. Survey.

Pecos County—Talbot & Ditman's No. 1 D. K. Unsicker, 2,640 feet northwest of the southeast line and 1,320 feet northeast of the southwest line of Section 25, Block 10, H.&G.N. Survey.

Runnels County—Vacuum Oil Co. and others' No. 1 R. M. McMillan, 2,150 feet north and 861 feet west of the southeast corner of Lot 22, and in the D. Diaz Survey, A-532. Same company's No. 2 R. M. McMillan, 1,650 feet north and 861 feet west of the southeast corner of Lot 22, and in the D. Diaz Survey, A-532. Same company's No. 3 R. M. McMillan, 2,150 feet north and 300 feet west of the southeast corner of Lot 22, D. Diaz Survey.

Shackelford County—The Texas Company's No. 4 J. F. Sedwick, 1,100 feet north and 7,300 feet east of the SW cor. of Section 1, Block 10, E.T.R.R. Survey. Same company's No. 5 J. F. Sedwick, 2,560 feet north and 7,300 feet east of the SW cor. of Section 1, Block 10, E.T.R.R. Survey.

Wilbarger County—Waggoner Refining Co.'s No. 1 W. T. Waggoner-I, 205 feet north and 205 feet west of the SE cor. of the south 50 acres of the west 213 acres of Section 33, Block 4, H.&T.C. Survey. Same company's No. 2 W. T. Waggoner-I, 205 feet north and 505 feet west of the SE cor. of the south 50 acres of the west 213 acres of Section 33, Block 4, H.&T.C. Survey. Same company's No.

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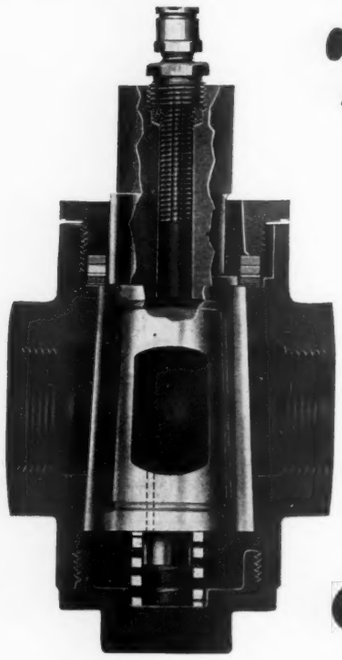

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6 W. T. Waggoner-I, 505 feet north and 1,005 feet east of the SW cor. of Section 33, Block 4, H.&T.C. Survey. Same company's No. 7 W. T. Waggoner-I, 505 feet north and 605 feet east of the SW cor. of Section 33, Block 4, H.&T.C. Survey.

MECHANICAL FILTER AIDS IN REFINING

(Continued from Page 140)

10 gallons of oil an hour. Used lubricating oil can be clarified perfectly with this same apparatus with the aid of filter-cel or standard super-cel.

Doctor

Spent doctor solution, with its separated lead salts and some gasoline, can be readily filtered with the aid of hyflo super-cel. Separation of gasoline in the clean filtrate is immediate and lead values are recovered. By this method, complete separation is effected quickly and economically and the spent doctor made available for neutralization on soda washing.

Filter Cloth Protection

Gasoline and kerosene under some processes are treated with concentrated sulphuric acids and clay. The residual acid and clay can be completely removed from suspension by passing the oil through a filter press coated with a filter-aid, using about 10 pounds of filter-aid per 100 square feet of filter area.

Where leaf type filters, such as the Sweetland, are used with metal cloths the metal cloth is protected by the filter-aid film. The oil can then be pumped through and the cake steamed without blocking up the metal cloth.

GASOLINE TAX SOMETIMES 25 PER CENT OF PRICE

(Continued from Page 138)

the voting population, the tendency has been to put an unduly large burden upon them, and such modifications as have been enacted since the adoption of the first income tax laws have, for the most part, favored the man with the small income.

It is likely that when the first gasoline tax was imposed its sponsors approached the subject timidly and subsequently trembled lest it cause a great outcry. When nothing like that happened they decided they had been too modest and the rate was increased. Today it ranges in the different states all the way from 1 cent to 5 cents a gallon. In some places where the higher figure has not been reached the politicians are advocating increases.

The automobile long since passed out of the luxury class and today is our most common and perhaps most useful transportation servant. It no longer is the privilege of the few to own a car, but the opportunity of the masses. In some localities there are more automobiles than telephones, and the average for the entire country is a car to about every six persons, or almost one to a family. We have 23,500,000 cars registered in the United States. Every one of them pays a direct tax in the form of an annual license fee. In addition, if it travels outside the States of New York and Massachusetts, its owner pays every time the filler cap is removed from his fuel tank.

Despite its setback in Illinois, the tax on gasoline is almost certainly a fixture, for the states would have to find a substitute were they to lose the revenue from this source on which they have grown to lean. The annual cost to the average car owner is not prohibitive and, being paid a few cents at a time, he is unaware of its total. The essentially bad feature about the plan is the ease with which the rate has been raised in several of the states.

Taking the average retail price of gasoline the country over, a tax of 2 cents a gallon is a little in excess of 10 per cent of the retail price, exclusive of tax. This would certainly seem to be the maximum load that the commodity should carry. It is far heavier than the tax on tobacco products. In several of the states the levy is 4 cents and in some even 5 cents. In the latter the tax amounts, therefore, to more than 25 per cent of the average retail price. These cases constitute an abuse of the states' taxing power and must certainly limit to some extent the people's enjoyment of a necessary commodity.

The consumption tax is a valuable means of bringing home to the voter the fact that government costs money and that he must bear part of the expense. The lesson would be more valuable if consumption taxes could be spread over other articles and income taxes or property assessments lessened by a like amount. If the voter realized that a part of every dollar which he earns and spends is taken from him for taxes, he would probably be more careful on election day to support the candidate standing for honest and economical administration.

The gasoline tax last year produced $250,000,000 for the states. The total will be considerably higher for 1928. With the rapid increase in consumption of gasoline it might prove that states which have gone beyond reason in increasing the rate could lower this to 2 cents and enjoy substantially the same amount of annual revenue from this source. The motorist who pays 25 cents to the state for every dollar's worth of gasoline he buys will awake to the situation one of these days and through organization compel his representative in the state legislature to vote for a downward revision.

QUICK TURNOVER SHOULD BE AIM OF MARKETERS

(Continued from Page 138)

second and third "X" and finally if it gets to be four months past the starting stage and does not move it gets a very bad mark knows as "B." It further appears that the longer the dollar waits to start the harder it is for it to start at all.

Now, all this means that if we are going to speed the dollar we must in the first place make the terms of payment as short as shall be consistent with the reasonable needs of our customers and in the second place we must collect our accounts receivable punctually when they become due.

We must become firmly imbued with the idea that we have not done the job until the gallon of oil is converted into the dollar in hand and that just as we speed the oil in the pipe line, through the refinery, on the ships, through the terminal on to the tank cars, and in and out of the tank trucks to the place where the consumer can get it, so we must speed the dollar back again to where it can be used in repeating the process.

The speed of collections in the domestic field is indicated by the following approximate percentage figures applying to total sales revenue:

	Per Cent
Received upon delivery	45.13
Received before the end of the month	16.46
Total received during the month	61.64
Outstanding at the end of the month	38.36
	100.00

The status of the outstanding receivable accounts at the end of a typical month was as follows:

	Per Cent
From sales made in the current month	74.7
From sales made prior to the current month but not yet delinquent	18.3
Notes and accounts past due more than four months	7.0
	100.0

Much attention is being given to speed in the transmission of funds.

An example of maximum speed would be currency deposited on the day of receipt against the delivery of a bank draft payable at district headquarters which is mailed same day; receipt of deposit and clearance of this draft on the record day, transfer by wire through the Federal Reserve system or correspondent bank credit on the third day to New York or Houston. This process will be slowed down in several factors—among them being payment by check instead of currency; transmission of funds to the district office by means of a local bank draft payable at the local bank instead of at district headquarters; transmission to New York or Houston by check instead of by wire.—Texaco Star.

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DEVELOPMENT UNDER UNIFIED CONTROL

(Continued from Page 34)

However, the drill had proved the existence of oil in some areas in which the acreage was divided among a number of individuals and companies. Competitive drilling, hastened by the high prices following the war and the invasion of the older areas by salt water, added hundreds of producing wells and hundreds of dry holes. The number of wells drilled each year soon far exceeded the number of wells that have been drilled in Persia since the beginning of operations in that country. The production of Mexico reached 193,000,000 bbls. in 1921. Most of the oil came from the area known as the "Golden Lane" or South Field. In 1922 the center of activity shifted to the Panuco or northern section, the flush yield of the South Field declining rapidly with the invasion of salt water and the falling of the gas pressure. Three and four dry holes marked the edges of the productive area where one could have shown its limits just as completely. A hundred wells had been drilled to the reservoir where 10 could have secured the oil from the highly porous channeled lime container just as easily. Pipe lines and storage facilities built to handle the flush yield of 1920 and 1921 were in excess of the needs of 1922. With the exception of the companies that had begun operations before the boom period, nearly every one of those who had shared in the development of the "Golden Lane" found that the final balance sheet showed a loss for his activities.

Drainage Area

Engineers and producers are not entirely in accord upon the question as to what amount of drainage area should be allowed to each well. It is natural to expect that more wells will be needed to drain the same acreage in a tightly cemented sandstone than in a porous and almost cavernous limestone. Similarly good practice would call for closer spacing of wells in which the thickness of the producing horizon is measured in hundreds of feet than where it is only a few feet in thickness. Each individual section determines for itself the spacing that is most economical in the long run. In general it does not appear that the number of wells drilled where individual leases are equal to 160 acres or more is much greater than the number that would be drilled if the whole area of the pool being developed was controlled by an individual operator.

However, in the great areas of competitive drilling, Burkburnett, Cushing, Spindletop, Santa Fe Springs, Long Beach, Powell, Mexia and others, tracts of 20 acres extent and even some of only 10 acres have occupied the centers of the productive areas. In the Seminole district the majority of the tracts were either 40 or 80 acres in size. In Hendricks Pool, in West Texas, most of the tracts were larger but several small ones occupied strategic positions in the center of development.

Invariably the presence of even a limited number of small tracts in the center of a major pool forces the drilling of a greater number of offset wells than would have been needed with larger divisions. The expression "town lot drilling" is generally considered as synonymous with excessive and unnecessary drilling. The large number of wells drilled in several of the gusher pools of the Los Angeles Basin can be traced to the small size of the tracts upon which leases could be secured in that densely populated area. Similar, though usually less sensational effects have been felt in other pools in the United States.

Rates of Development

The advantages of unified control over competitive drilling are much more evident when comparisons of the rates of development are made. A leading example of pools developed under unified control is the Big Lake Pool in West Texas. This pool was discovered in 1923 in the center of a large block of state land. Its development was carried on by two allied companies who held leases on practically all of the potential area. While the development was begun immediately, only 13 wells had been completed to the end of 1924. By the close of the following year the number had been increased to 37. These were located in such a manner as to outline the potential area in a general way. During 1926, 12,227,260 bbls. of oil were produced. During 1925 and 1926 drilling had been speeded up to take advantage of relatively good prices, but in 1927 and 1928 little effort was made to drill the proven locations because of low prices for oil. On the first of September of this year there were approximately 225 producing wells in the pool, with locations for as many more considered as proven. At no time during its history was it necessary for the operators to drill a well not in accordance with their policy of development. Through freedom from the necessity of rushing work on offset locations it has been possible for the operators to keep the number of wells drilling at any one time at a low figure and to provide steady work for those strings of tools at the pool. At no time during the development of the pool was it necessary to make expenditures for storage.

The record of Big Lake stands in marked contrast with the records of Yates, Hendricks and the several pools along the Crane-Upton County line. All of these pools are producing from the same general horizon as Big Lake. Yates Pool operators avoided the necessity of building a large amount of storage by agreeing to prorate all production and to keep that production within the limits of the capacity of the pipe lines. However, the nature of that agreement was such as to encourage operators to drill up their properties as rapidly as possible in order to increase their share of the runs permitted. Though the pool is only two years old and the potential capacity of its wells many times the available pipe line capacity more than 250 wells are already producing.

Production along the Crane-Upton County line began about three years ago. Except within the large tract owned by the Gulf Production Co., known as the McElroy area, its development has been marked by highly competitive operations. In all nearly 600 producing wells have been drilled.

Hendricks Pool

The importance of the Hendricks area of Winkler County was not realized until March of 1927. Within a year and a half more than 300 wells were producing. Much of the early yield of this pool and of the Upton-Crane pools was placed in costly storage because of the lack of facilities to transport the oil to markets. The Oil and Gas Journal has carried many accounts of the difficulties and costs of drilling and hauling against time in these pools. Not all of these problems could have been avoided, but they could undoubtedly have been greatly lessened if the length of the development period could have been doubled.

Nearly 1,400 wells were completed in the Seminole district in the two years following the discovery of oil in the Wilcox horizon in that area. Approximately one out of every seven was dry. Many of these were necessary because of the peculiarities of the producing horizon. A substantial number would have been unnecessary if the area had been developed under some co-operative or unified control. The necessity of reaching the producing horizon before the completion of the offset and the reduction in gas pressure made it necessary to rush work even on locations of questionable value. The desire for speed forced the haulage of heavy pipe and machinery over nearly impassable roads. Reliable drillers and other oil field workers were at a premium. Strings of tools were being brought in from distant points. Heavy expenditures were made for the construction of field camps and the stocking of field warehouses. In short, the producer at Seminole was called upon to pay premium prices for everything that he needed.

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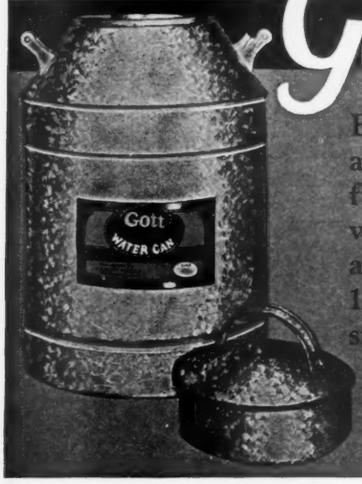

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quently cited as an example of the benefits of unit control. The pool was discovered in December of 1923, the discovery well being located on a block of 3,500 acres controlled by one group. Steady drilling brought the pool to a peak production in approximately 20 months. The limits of the productive area were outlined by the minimum number of dry holes. Costs of drilling were low because of the absence of the necessity of rushing operations.

The development of Luling, one of the major pools along the Luling-Mexia fault line, is in marked contrast to the development of other pools along that line. Experience at Mexia had shown that the bulk of the production from the narrow high pressure pools along this zone was secured in the first few months after the discovery. Immediately after the discovery of oil at Powell and at Wortham, drilling equipment was rushed in by all owners of nearby leases. Wortham reached a peak production within two months after its discovery. The more prolific pool at Powell reached its peak at six months. In both cases an excessive number of dry holes marked the edge of production and far more wells penetrated that producing horizon than were needed for economical production. At Wortham there were 91 competitive blocks and at Powell 122. This does not mean that there were that many individual operators but that the areas were split up into that many leases, all having boundary lines to be protected against drainage. Practically all of the Luling area that proved to be productive was controlled by one company. Others holding outside acreage drilled a number of dry holes in hopes that the area might extend as far as their acreage. The peak production was reached two years after the discovery. The decline from the peak was slow as additional wells were drilled to the producing zone to supplement the yield of those already beginning to decline. In 1927, three years after the peak production of 1924, its yield was 60 per cent of that of the peak year. Wells were spaced to give maximum yields and only a relatively small number of dry holes were drilled by the United North and South Oil Co., the owners of the bulk of the acreage, in determining the edges of the productive area.

Costs Contrasted

The contrast between the conditions in the pools developed under unified control and those existing where competitive drilling held sway is sufficient proof that the costs under the latter method of development will average substantially higher than under the first. The evidence to support that contention is available to all in the files of trade papers, the journals of technical societies, and the reports of governmental bureaus. The answer to the second question, "Will the proposed method produce a greater yield of oil than is now being secured by competitive operations under the same conditions in other regards?" is not as easily secured. At first sight, it would appear that the answer to this question depends entirely upon the answer to the inquiry as to the relative costs of production under the two systems. The reader will recognize that this is not entirely true. Much oil is secured from wells that will never pay for themselves and would never have been drilled if their possibilities could have been foretold. Some of the most careful students of the oil industry have questioned whether the expenditures of the producing division of the industry as a whole have not exceeded the sales value of the oil produced. Theoretically an industry that does not yield a profit should not attract capital to it. However, the large returns secured by some investors make others forget their losses and continue to invest in the hope of one big "killing."

Water Problem

Undoubtedly the greatest enemy faced by the oil producer is water. The controlled flood has added to the production of the Bradford district but many operators fear the effects of even this type of flood and are bitterly opposed to its use in other sections. Extraneous water entering the productive horizon from other horizons because of the failure to properly set plugs or casing has ruined thousands of wells. The most glaring examples of such failures occurred in the earlier days of the oil business. However, they are still all to prominent in the development of competitively drilled pools in which irresponsible individuals have secured drilling rights on centrally located tracts. All of the more important oil producing states have stringent regulations concerning the shutting off of water. However, it is not always possible to provide for the inspections that are needed to guarantee that the rules are being lived up to. Much depends upon the personal honor and interest of the operator himself. Certainly, that interest is directly proportional to the size of his interest in the pool being developed. If he is interested as much in the production of the pool as a whole as in the production of one small tract, he will take greater care than if he is interested only in the one tract.

In many pools the oil and gas are in direct contact with the water contained in the same horizon. In theory free gas, being the lightest, should always rest on top of the oil and the water. Similarly the oil should rest on top of the water. This is the general condition in pools at the time that they are first opened up. However, an oil horizon is not comparble with an open tank or a large pipe in which the flow, once production has begun, can be considered as controlled entirely by gravity. The higher viscosity of oil tends to restrict its movement through the small openings of the producing horizon to a greater extent than that of water. Thus, where under competitive operations it becomes necessary to flow a well at capacity to secure the advantages of the high initial pressures, that high rate of movement of oil out of the productive horizon frequently causes the water to pass by the oil and trap it in such a manner as to make its recovery difficult or even impossible. It is generally recognized that ultimate recovery is greatly increased by pinching in such wells and producing them at considerably less than capacity. Of course, the daily yield is reduced and the period of recovery is greatly extended. This is good business provided the owner of an adjacent well does not produce his well to capacity and draw away some of that oil. Complete freedom from such a possibility can only come through unified control.

Importance of Gas

During the past few years the importance of gas in the recovery of oil has been stressed as never before. While much remains to be done both in the field and in the laboratory to check the assumptions made and to determine the exact value of gas in oil production, sufficient has been shown by the work done up to the present to indicate that gas is of major importance in the expulsion of oil from its container horizons. Gas dissolved in oil reduces its viscosity, thus enabling it to maintain its position ahead or above the encroaching water. The amount of gas that may be dissolved is proportional to the pressure under which the oil is held. Gas dissolved in oil under pressure gives it a source of energy which causes it to move to any location, such as a well, in which the pressure is lower. Gas may then be considered as a driving medium of great importance in causing the movement of oil through the productive horizon to the well. Any method of production that does not take advantage of this cannot be expected to yield as much oil as one that does.

It is evident that the man who taps a portion of the oil containing horizon that contains free gas and exhausts that gas into the air or sells it at a low price to as many consumers as he can in order to draw oil in to fill the void created and thus to bring that oil into his own well is materially lowering the pressure in the whole horizon. He is decreasing the amount of dissolved gas as that is proportional to the pressure. In other words, he is increasing the viscosity, decreasing the amount of energy remaining, and, therefore, decreasing the ultimate recovery. Yet, there does not appear to be any way in which he can be recompensed if he shuts down his gas wells in a com-

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(Watson-Beazley Patent)

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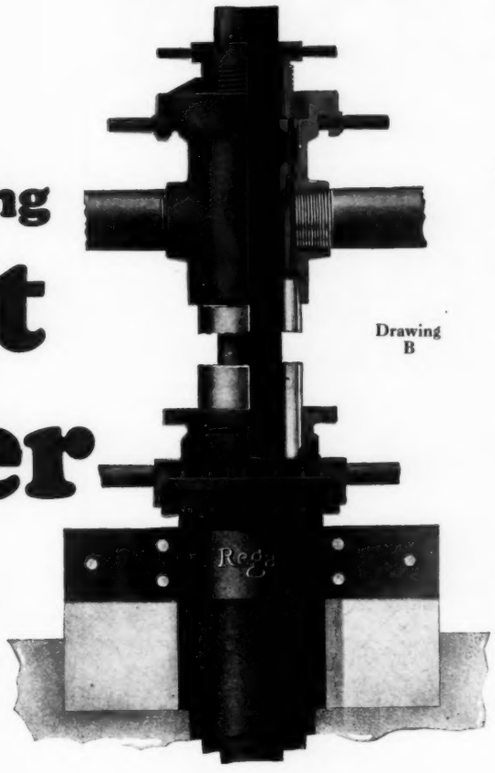
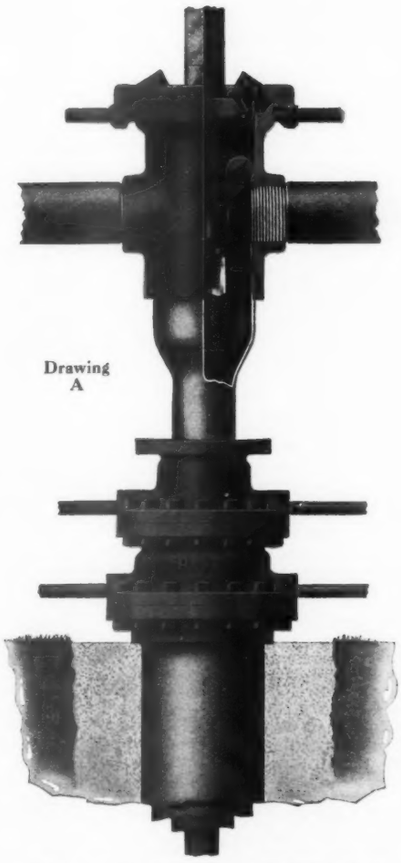
—or running and pulling Pipe or Casing



Drawing B

The above illustrations show the Regan Drilling Blowout Preventer indicating method of sealing drill pipe or casing. A compression ring is provided.



Drawing A

The above illustration shows the Regan Drilling Blowout Preventer with Kelly sealed. A special sub is provided for the Kelly.

This Blowout Preventer provides positive control during all drilling operations. It is recommended for use in conjunction with the Regan Control Head. It provides a positive seal-off around the Kelly, as well as the drill pipe, and also controls casing when running in or pulling.

When used in connection with the Kelly (Drawing A) the only operation necessary to effect a positive seal is to raise the Kelly which is provided with a special sub that compresses the packing ring within the body. This enables the operator to mud off pressure when necessary.

When pulling or running in casing or drill pipe, means are also provided for effecting a positive seal by using two semi-circular compression rings in place of the Kelly assembly. A tight seal is effected by either the weight of the casing or drill pipe resting upon the compression rings or by manual operation of the screw ring, as shown in Drawing B.

The illustrations show the Blowout Preventer installed in connection with the Regan Control Head.

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petitively drilled area. In an area under unified control there would be no reason for producing the gas.

This problem becomes more complicated where the wells in the higher portions of the structure produce both oil and gas in large amounts. It is difficult to see how such wells can be benefited by keeping down the daily gas production and with it the daily production of oil. Undoubtedly wells on the flank of the structure and near the water line will benefit by such action. However, in a competitively drilled area these wells will probably be controlled by different interests than those owning the central parts. Again the unified system of control has a distinct advantage.

Special Methods of Recovery

In some fields the price of oil has already reached the point where special methods of recovery are economically feasible. Both repressuring with air or gas and flooding with water through key wells demand that the producer control a substantial amount of acreage. The first step in an attempt to apply these methods to a new area is the procuring of options on all of the leases that might come within the radius of action of the proposed installation. Failure to secure the options on the majority of the leases usually means abandoning the effort. In Dominguez, Calif., the close control over the area of the pool exercised by three companies made it possible to start repressuring before the initial pressure had fully declined. Such action would have been impossible in a pool as greatly subdivided as Long Beach.

The third question concerned itself with relative costs of production. The use of special recovery methods may not cause the per barrel cost of production to fall as they add to the total production additional oil in the securing of which an extra effort is made. However, the increased recovery due to better control of water and more efficient use of the gas will undoubtedly decrease the cost per barrel. Savings in development expenses will add considerably to the profits of those operating under unified control. The methods of the Midwest Oil Co. at Salt Creek and the Empire Companies at El Dorado, Kans., are frequently cited as models of efficiency in the pumping of wells and the handling of production. In both cases the companies operate a large number of adjacent properties and are able to use all of the most efficient methods known and take advantage of the little savings that are not available to the owner of a single lease or a number of isolated leases. In this the relation of the larger producing unit to the smaller producing unit may be considered as comparable with that of any large business organization to its smaller competitor.

Ultimate Recovery

The fourth question asks whether unified control may be expected to result in greater ultimate recoveries over a long period of years than may be anticipated under present methods of operation. The use of the expression, "a long period of years," is intended to cover a period of at least 15 or 20 years, an interval of time of greater length than the life of the average well. The second question dealt with recovery during the life of the well under present or similar conditions. From the discussion of that question the reader will conclude that the advantages of unified control are such that greater recoveries over a period of 5 to 10 years may be expected from pools operated under such conditions than from those in which competitive action controls development.

Undoubtedly there will be universal agreement that the policy of keeping water out of productive horizons or potentially valuable horizons will result in better operating conditions and greater yields over a period of 30 or 40 years as well as over a period of five or six. If unified control of development leads to better control over this arch enemy of the oil producer, it must be considered as of great value to the future as well as to the present. Immediately we are called upon to explain the ultimate possibilities of a pool that has been deliberately flooded. Assuming that the production of such a pool was 20 per cent of its original oil content by ordinary flowing and pumping and 20 per cent by the use of the water drive, there still remains 60 per cent of the original oil content. The oil that has been removed has been replaced by water. The container horizon is flooded and must be dewatered before mining or semimining methods can recover the remainder. The problems involved in that dewatering may prevent that oil from being recovered at all. The flooded horizon has as little value as the pillars of coal that were left in a coal mine and have caved under the weight of the roof above them.

Water Flooding

The use of a water flood demands control over a substantial acreage by a single interest. This unified control makes possible the extraction of far more oil than can be secured by ordinary pumping and flowing under competition. Yet the means used to secure that oil tend to create a condition in which the difficulties of further extraction are increased. It is entirely possible that ultimate recovery of a tract that has been subjected to the water drive will be much lower than that of a similar tract upon which no special recovery method is applied until prices and improved technic permit the use of some semimining method.

Repressuring with gas or air and more efficient use of the original gas contained in the horizon are not expected to bring the recovery of oil to a point where the quantity of oil remaining in the ground may be considered as negligible. Such methods will tend to decrease the quantity and the value of the product that may be secured by improved methods that are applied at a later date to the same extent that they increase the percentage of the oil secured today.

The situation is analogous to one that occurs from time to time in copper mining. A mine that was developed 50 or 100 years ago and was shut down by its original owners as exhausted is revived as a profitable venture. On the other hand, a mine that was shut down 10 to 20 years ago cannot be revived under present conditions. In the first case the improved technic makes possible the working of ore that was of no value in that early period in which the mine was operated. In the second case, the operators of 10 or 20 years ago extracted so much copper and left ore of such low grade that even though the tonnage is large and some improvements have been made which would make possible the working of that ore in a new mine, it cannot be worked at a profit today.

In brief, it does not appear that, barring the results of failure to shut out or plug off waters due to lack of interest, the unified system of control of development can claim greater yields over a long period of years than the present system will produce. If unified control encourages the flooding of horizons or the use of any system that tends to create a condition in which the further recovery of oil by more improved methods is prevented, the ultimate recovery may be decreased.

Restricting Production

During 1927, there was the culmination of a major period of overproduction. Yet Colombia, Persia and Russia reached peak productions. In Colombia all of the oil was produced by one company. The same was true in Persia. In Russia, government controlled companies were in entire charge. In other countries, where producing areas were controlled entirely by single interests, production was maintained at a high rate despite low prices. In the United States, substantial amounts of oil were produced in Salt Creek, Big Lake, Rainbow Bend, Luling and other pools controlled by one group or by cooperating groups.

Overhead a Factor

In all of these sections the pools had been developed and were producing under some form of unified control. Yet, production while below capacity was far from the stage of complete shutdown. The explanation is not difficult. In every one of the sections, large investments had been made. The overhead or carrying charges had to be paid whether the wells produced oil or not. Such charges could be met in short periods of

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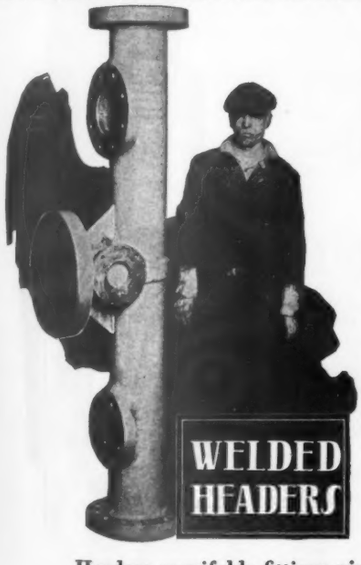

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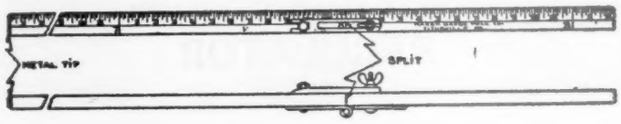

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overproduction by the use of funds in the surplus account or by bank loans. As the period of low prices continued, funds were raised by the sale of bonds or by stock issues. However, the very marketing of such securities demanded that the companies present statements showing fair amounts of earnings. Earnings can only be secured through production and sale of oil. The necessities of the case prevented the leaving of oil in the ground even where the owner felt certain that prices would improve in the immediate future. However, in many instances there was no guarantee that the improvement in price would occur within a reasonable time, and that when it did come that it would be of sufficient amount to pay for the interval during which no income was secured.

Coal producers, copper mines, steel plants and all other types of industries face the reoccurrence of overproduction. In every one of them the individual enjoys the right to shut down his plant if he desires to do so. Unit operation will give each producing unit the right to do likewise. Undoubtedly, it will help very materially in preventing the extreme fluctuations of prices that now accompany the competitive development of great gusher pools. However, it cannot be expected to overcome the dangers of overproduction entirely. At best it can only give the oil industry the chance to keep its price swings within the same limits as those of other mining industries. It is probable that the average price of oil will be relatively low because of the large potential capacity of pools scattered throughout the world. However, the price should be more steady than under the competitive system of pool development.

CENTRAL WEST FIELDS

(Continued from Page 68)

well in No. 6 on the Rettie Syphers, Section 18. Bowman Oil & Gas Co. has an average gas well on the W. H. Starling, Section 26, from the second Berea sand at from 1,525 to 1,542 feet, bottom of hole at 1,550 feet. Ohio Fuel Gas Co. has a nice gas well in No. 2-3,242 on the Julia A. Barkhurst, Section 18, in the Salt sand from 687 to 690 feet. Penn Contracting Co. is drilling on the B. G. Hoon, Lot 5. In Deerfield Township, Pierce and others have a fair gas well on the A. L. and A. M. Timberman, Lot 17, at a depth of from 1,234 to 1,254 feet. Henning Brothers have a fair gas well in No. 25 on the Ada Harper, Section 2, Penn Township, in the second Berea sand at from 1,415 to 1,436 feet, total depth 1,575 feet. Dover Oil Co. is drilling No. 16 George B. Dougan, Section 35, and Bauman and others are drilling No. 3 John P. and C. E. Hilman, Lot 14.

Indiana

Seven completions are more than are usually found in Indiana in any one week, although but few wells of good oil production are being opened at this time. Much attention was attracted to the drilling of a deep wildcat by Franey and Johnson on the George Kraft farm, Section 3, Armstrong Township, Vanderburg County, in the southeast corner of the farm, which is in the southeast quarter of the section, which failed to show for a well at a total depth of 2,205 feet, and is listed as a duster.

H. C. Dabry and others' test in the northwest corner of the Fannie Fowler, in the northwest quarter of Section 26, Logan Township, Pike County, is reported good for 10 bbls. initial production. Top of sand found at 1,349 feet, drilled 8 feet in the sand and then to a total depth of 1,357 feet. Perry C. Andrews drilled a dry hole in No. 9 in the northeast corner of the A. Atkinson farm, in the northeast quarter, Section 23, at a depth of 1,387 feet.

In Gibson County, Barton Township, the Gem Oil Co.'s second test in the southeast corner of the S. M. and W. S. Ferris, in the northwest quarter, Section 5, is a very light gas well at from 282 to 287 feet. Same parties' No. 1 M. Duncan farm, Section 8, is also a light gas well at 287 feet. In Columbia Township, the Roxana Petroleum Corp.'s

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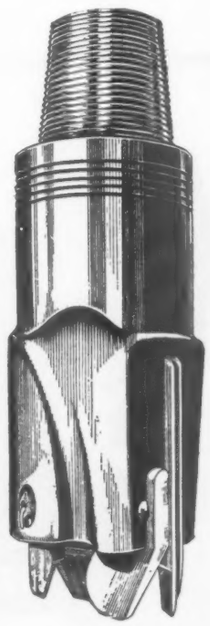

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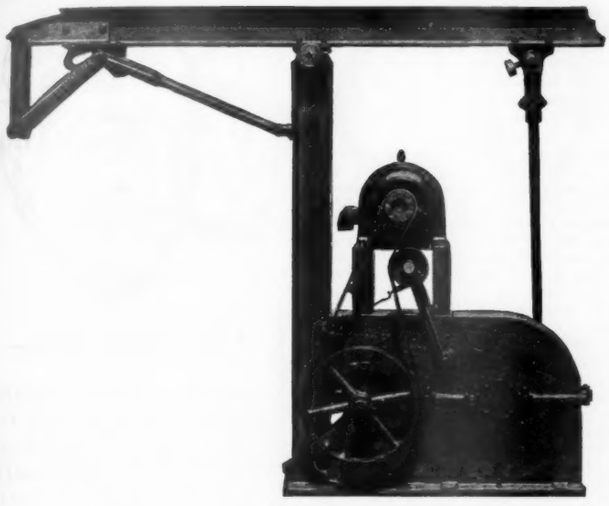

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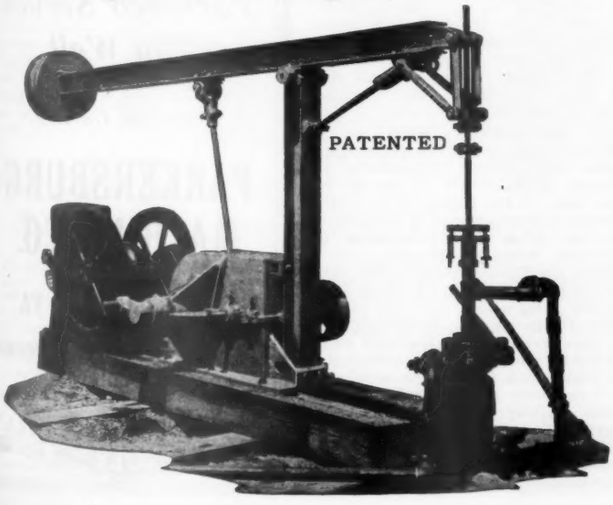

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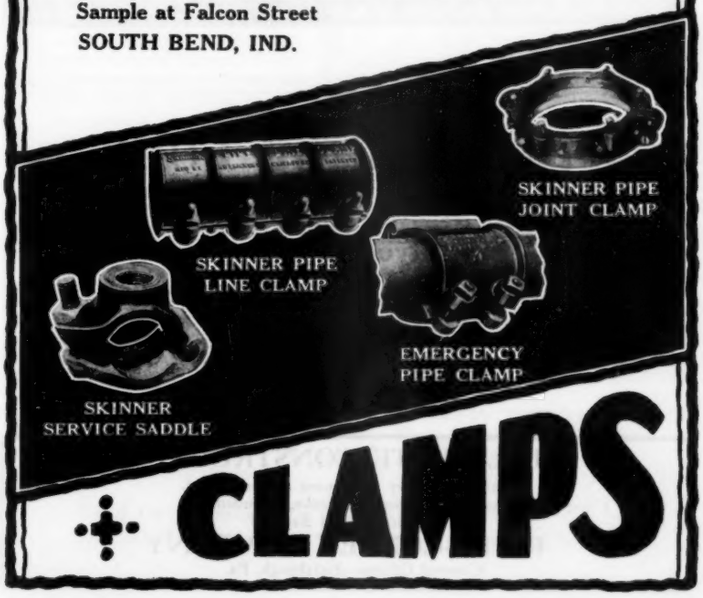

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test, 660 feet from the north line and 220 feet from the west line of the R. Hollen, in the northwest quarter, Section 22, was dry at 1,525 feet, and No. 1 well, 150 feet from the south line and 669 feet from the west line of the V. Wirth farm, in the southeast quarter, Section 15, was also dry at 1,710 feet.

Illinois

Out of six completions in Illinois, four were failures, with but few new wells under way. The two producing wells are in Honey Creek Township, Crawford County, where the W. C. McBride, Inc., drilled No. 3 well 660 feet from the south line and 700 feet from the east line of the A. W. Mann farm, in the northeast quarter, Section 13, which produced 18 bbls. the first 24 hours at a depth of 1,493 feet. No. 3 well, 180 feet from the north line and 700 feet from the east line of the same farm, produced an initial of 11 bbls. at a depth of 1,500 feet.

In Dennison Township, Lawrence County, the Ohio Oil Co. abandoned No. 17 on the T. P. Gillespie, Section 23, also abandoned Nos. 1, 3 and 7 on the D. B. Whittaker, Section 35, Lawrence County, which means the return of the lease to the landowner.

In the Allendale Field, Wabash Township, Wabash County, Joe S. Young, Jr., and others' No. 1 well, 600 feet from the south line and 200 feet from the east line of the John Compton farm, in the northwest quarter, Section 12, was a dry hole at 1,559 feet.

Dry holes are reported from Hickory Point Township, Macon County, on the Parris lease; No. 1 on the Gussweiler lease, in Pine Oak Township, Madison County, and No. 1 on the William Prosser farm, in Holland Township, Shelby County.

KENTUCKY-TENNESSEE

(Continued from Page 68)

accounted for in Barren, Allen, Hopkins, Warren, Simpson, Cumberland, Monroe and other counties in the western area.

Week's Work

A summary of the week's work in the Kentucky fields shows 27 completions, 17 producers with an initial production of 489 bbls., 10 dry holes and no gas wells.

County—	Comp.	Oil wells	Prod.	Dry
Daviess	17	10	285	7
Ohio	5	4	185	1
Warren	2	1	2	1
Hancock	1	1	2	0
Henderson-Union	1	1	15	0
Knox	1	0	0	1
Total	27	17	489	10

Western Kentucky

Production is climbing in the Tri-County fields of the western area of the State, as the daily average production of Ohio County accounts for 5,957.05 bbls., for November and Daviess County for a daily average of 3,386.42 bbls. This is a daily average for the two counties of 9,343.47 bbls. December's production should show a gain over November as the new Burton Pool was opened up in Daviess County as well as new additions to the Ohio County area. The talk of the operators is that something worth while is bound to be found in the old Hartford Pool owing to the nice showing made by the new well on the Carter farm. Leases around this well are in demand at above the average prices paid in other pools.

Daviess County Wells

The best completion in Daviess County reported for the period, was made by L. C. Young in his No. 6 on the K. N. Yeiser lease, in the Hayden Pool, which is credited with an initial of 100 bbls.

In the Jones Pool, southwest of Whitesville, Watts and Brewer's Nos. 4 and 5 on the Lawson Howard farm, are rated as good for around 35 bbls. each from the Jones sand.

C. E. Daugherty's No. 4 on the Christian heirs' farm, in the Red Hill Pool, is a 15-bbl. pumper. Same parties' No. 2 A. Feldspausch farm, in the same pool was a dry hole, and No. 3 is rated at 15 bbls. initially.

Batton, Young and others' No. 1 on the Herbert Salmon farm, east of the Howard, is a 20-bbl. producer.

In the Burton Pool, Daley and Low-

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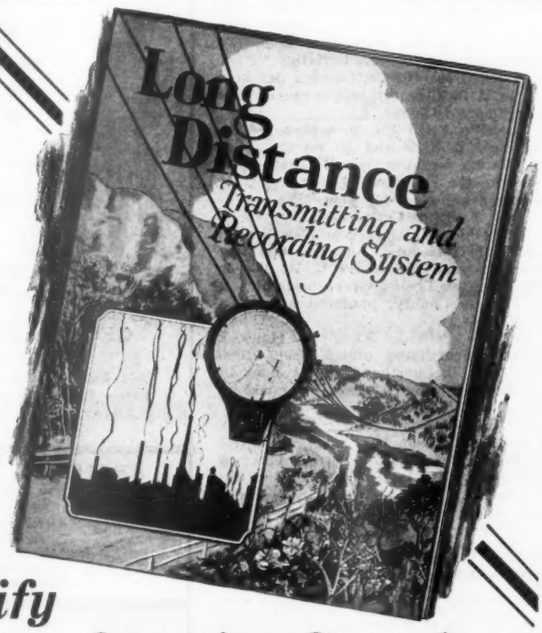

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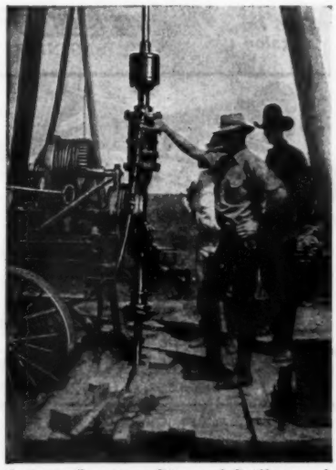

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man's No. 2 on the R. E. Burton east 100 acres, is rated at 20 bbls. while No. 2 is reported dry.

Smith, Randolph and others' No. 1 on the Whitesville Bank Co. land, southwest of Whitesville, is a 10-bbl. pumper.

Eastern Gulf Oil Co.'s No. 4 W. A. Murray, in the Red Hill Pool, is reported at 30 bbls. initial production.

Weideman Oil Co.'s No. 1 on the Homer Crossler, in the Red Hill Pool, will make what shows for about a 5-bbl. pumper.

Red Hill Oil Co.'s No. 6 on the Irwin-Slagle 47 acres, in the Red Hill Pool, is a duster. Wittmer Oil & Gas Co. got a duster in No. 1 on the George Tinsley, same pool.

Wood Oil Co.'s No. 2 R. F. Sands' 155 acres, in the Red Hill Pool, was a dry hole.

The Penn-Indiana Oil Co.'s test in the Panther Creek area, is reported a failure, as is H. C. Smith and others' No. 1 A. K. Hite farm.

Ohio County Wells

Very little was accomplished in the completions of wells in the producing areas of Ohio County.

It looks as though Fred Evans and others have made a good strike on the A. A. Carter farm, near Dukehurst, in the old Hartford Pool, of years back, 26 feet of rich pay sand was hit in this well at 975 feet. This well is approximately 5½ miles northeast of Hartford and about 1½ miles from Sunnydale, and was shot, developing a well better than 75 bbls. initially. From indications shortly after the shot was put off, the well may flow for some time, without pumping. Virtually all of the acreage in that section has been leased and development now seems a certainty, if bad roads do not preclude getting in and out with equipment.

C. H. Tremor and others' test on the Charles Roach 135 acres, in the Whittaker Pool, is said to be good for 60 bbls. initially. In this well a string of 560 feet of casing was set, and oil found in sand from 569 to 589 feet and total depth, 590 feet.

The Ohio Oil Co. set a string of 570 feet of casing, got sand from 580 to 595 feet at No. 5 on the E. L. Patton 54 acres, also in the Whittaker Pool, the well producing 10 bbls. initially.

Rough Creek Oil Co. found a dry hole at No. 1 in the northeast corner of the A. Gilmore 70 acres.

The Wood Oil Co. is reported drilling Nos. 7, 8, 9 and 10 on the John W. Mattox 55 acres, near Reynolds Station, in the area where the line fight has been going on for some time.

Other Completions

The Ohio Oil Co.'s No. 3 well, 200 feet from the north line and 600 feet from the east line of the G. A. Weller 200 acres, at Locust Grove, near Ensor, in Daviess County, produced an initial of 40 bbls.

In the Pellville Field of Hancock County, Sears and others' test, 1,000 feet from the north and west lines of the Edward Baize 89 acres, pumped an initial of 2 bbls.

In Warren County, Bert Winons' No. 1 on the Harrison Hall farm, southwest of Bowling Green, produced 2 bbls., at 960 feet. M. V. Hatcher and others' test on the W. L. Taylor farm, in the same area was a dry hole at 505 feet.

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Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS

Pipe Line Statement for October Runs

Company—	Month bbls.	Dly. av. bbls.
*Prairie P. L. Co.	4,650,000	150,000
Gulf P. L. Co.	1,718,381	55,431
Texas P. L. Co.	908,178	29,296
Magnolia P. L. Co.	2,340,076	75,486
Empire P. L. Co.	1,247,884	40,254
Cosden P. L. Co.	895,409	28,884
Sinclair P. L. Co.	3,518,500	113,500
Oklahoma P. L. Co.	3,549,012	114,484
Other lines	7,672,500	247,500
Total October	26,499,940	854,835
Total September	25,508,355	850,279
Difference	991,585	4,556

Shipments

†Prairie P. L. Co.	6,254,380	201,754
Gulf P. L. Co.	1,644,809	53,055
Texas P. L. Co.	901,058	29,066
Magnolia Pet. Co.	2,005,843	64,705
Empire P. L. Co.	1,223,043	39,453
Cosden P. L. Co.	849,653	27,408
†Sinclair P. L. Co.	3,427,350	110,560
Oklahoma P. L. Co.	3,432,767	110,734
Other lines	7,595,000	245,000
Total October	27,333,903	881,735
Total September	26,460,656	882,021
Difference	873,247	286

Stocks

	Bbls.
Prairie O. & G. Co.	31,952,000
Prairie P. L. Co.	2,250,000
Gulf P. L. Co. and Gypsy Oil Co.	10,206,411
The Texas Company	6,871,289
Magnolia Pet. Co.	9,136,351
Empire P. L. Co.	3,674,491
Mid-Continent Pet. Corp.	3,564,997
Sinclair Crude Oil Pur. Co.	20,465,000
Carter Oil Co.	12,228,725
Oklahoma P. L. Co.	3,151,537
Other lines	11,700,000
Total October	115,173,801
Total September	113,392,812
Difference	1,780,989

*Estimated. †Prairie P. L. shipments include Texas crude oil, and Sinclair shipments include Texas and Wyoming crude oil.

Note—Stocks do not include approximately 8,300,000 bbls. of crude oil held in storage on private tank farms and leases and approximately 200,000 bbls. of Texas Panhandle crude oil in storage in Oklahoma.

EASTERN PIPE LINE REPORT

Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for October and November:

	Oct.'28	Nov.'28
Nat. Transit	172,463.66	149,632.58
S. W. Pa. P. L.	94,478.66	83,351.54
Eureka P. L.	400,695.98	340,150.08
Buckeye P. L. (Macksburg)	363,769.46	324,323.38
Buckeye P. L. (Cleveland)	13,134.12	9,969.20
Buckeye P. L. (Lima, etc.)	119,271.80	95,741.92
Indiana P. L.	7,592.34	5,045.26
Cumberland P. L.	317,937.04	290,253.82
N. Y. Transit	36,945.74	26,096.56
Tidewater P. L.	223,123.30	213,822.88
Pure Oil	64,772.84	63,222.62
Emery P. L.	62,569.80	59,915.74
Paragon Dev.	24,640.17	21,545.52
Stoll Oil Ref.	9,609.59	8,888.44
Total	1,800,994.50	1,606,958.54
Daily average	58,099.79	53,565.15

Note—Indian Refining Co. also reported other receipts of 367,515.15 bbls. Paragon Refining Co. had other receipts of 159,377.75 bbls. Paragon Development had other receipts of 479.18 bbls.

Petroleum Deliveries

The following table exhibits the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, Wst Virginia, Ohio, Kentucky at the close of October and November:

	Oct.'28	Nov.'28
Nat. Transit	528,778.26	581,562.73
S. W. Pa. P. L.	491,708.27	453,348.05
Eureka P. L.	228,824.47	233,597.31
Buckeye P. L. (Macksburg)	139,624.01	104,175.67
Buckeye P. L. (Cleveland)	2,425.85	1,942.42
Buckeye P. L. (Lima, etc.)	1,424,886.12	1,432,776.49
Indiana P. L.	1,426,003.87	1,330,185.20
Cumberland P. L.	221,498.45	182,624.70
N. Y. Transit	278,273.65	232,023.71
Northern P. L.	130,832.45	240,489.16
Tidewater P. L.	183,550.90	181,613.37
Pure Oil	109,074.40	63,566.49
Emery P. L.	59,853.71	59,688.23
Paragon Ref.	203,968.74	159,377.75
Paragon Dev.	26,688.69	.....
Total	5,455,991.94	5,306,941.28
Daily average	175,999.74	176,898.04

Indian Refining Co. reported other deliveries of 292,984.68 bbls.

Gross Stocks

The gross stocks held by various pipe lines in the oil producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky for October and November:

	Oct.'28	Nov.'28
Nat. Transit	971,530.85	937,788.09
S. W. Pa. P. L.	674,433.72	548,202.29
Eureka P. L.	1,049,306.93	1,119,157.14
Buckeye P. L. (Macksburg)	496,344.46	565,202.83
Buckeye P. L. (Cleveland)	41,437.01	29,807.45
Buckeye P. L. (Lima, etc.)	3,428,238.49	2,745,636.88
Indiana P. L.	591,505.91	542,471.12
Cumberland P. L.	504,787.65	520,634.29
Southern P. L.	433,685.28	374,083.37
N. Y. Transit	494,456.24	403,009.35
Northern P. L.	429,822.34	381,904.17
Pure Oil	14,039.00	14,711.72
Emery P. L.	11,502.07	12,163.12
Paragon Ref.	15,313.80	22,875.49
Indian Ref.	66,957.25	142,492.29
Paragon Dev.	6,347.21	6,413.78
Total	9,229,709.11	8,366,553.33
Decrease	431,201.23	863,155.73

Grades of Oil

The following table shows the amount of the different grades of oil held by the east-pipe lines at the close of October and November, showing the gross stocks of the above fields:

	Oct.'28	Nov.'28
Pennsylvania	3,121,156.66	3,045,588.44
Lima	977,037.03	793,424.06
Kentucky	799,724.03	767,197.74
Mid-Continent	4,278,220.12	3,605,501.13
Illinois	53,571.27	154,842.01
Total	9,229,709.11	8,366,553.38

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1925	1926	1927	1928
Jan.	56,831	55,630	56,209	52,904
Feb.	60,606	60,394	61,298	57,002
Mar.	60,575	61,644	62,247	57,485
April	63,062	63,019	60,327	56,812
May	59,217	60,580	60,284	62,067
June	61,270	61,131	62,757	58,220
July	62,639	63,206	58,674	57,144
Aug.	59,586	61,815	60,870	57,745
Sept.	62,510	64,639	60,285	53,487
Oct.	145,388	161,132	147,030	58,100
Nov.	59,350	61,774	57,275	53,565
Dec.	57,974	58,755	53,089	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1925	1926	1927	1928
Jan.	157,889	155,056	141,227	146,465
Feb.	160,863	159,488	138,534	167,368
Mar.	154,591	150,239	133,777	158,883
April	151,429	152,371	140,227	172,935
May	146,995	150,998	144,594	180,559
June	149,467	160,257	149,772	188,034
July	161,338	160,045	151,850	189,470
Aug.	161,730	151,939	188,652	192,853
Sept.	156,719	158,915	144,213	194,138
Oct.	145,388	161,132	147,036	176,000
Nov.	143,582	152,608	150,975	176,898
Dec.	150,163	136,428	144,504	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields including oil received from other lines at the close of each month for the past three years:

	1926	1927	1928
Jan.	9,859,170	9,718,008	13,276,710
Feb.	9,579,354	10,119,162	13,108,413
Mar.	9,438,292	10,794,044	13,233,725
April	9,805,851	11,112,295	11,740,125
May	9,531,757	11,359,381	11,682,407
June	9,585,904	11,493,673	11,397,671
July	9,734,687	11,458,128	10,819,321
Aug.	9,058,947	11,989,116	10,336,710
Sept.	9,436,732	12,212,716	9,660,910
Oct.	9,269,806	12,047,661	9,223,709
Nov.	9,257,067	11,939,746	8,866,553
Dec.	9,454,512	12,340,397	.....

Franklin Pipe Line Co.

The following table exhibits the condition of the Franklin Pipe Line at the close of business for the months named and accounted in the stocks and averages reported above:

1927—	Runs	Shipments	Stocks
Nov.	2,746.50	2,220.58	23,472.58
Dec.	2,779.86	1,893.69	23,358.75
1928—			
Jan.	1,886.06	2,424.79	21,819.99
Feb.	2,460.14	3,109.34	21,170.79
Mar.	2,578.86	3,540.38	20,209.27
June	3,153.08	2,779.62	17,582.23
July	2,902.50	3,628.02	16,197.06
Aug.	2,874.11	3,350.13	17,721.04
Sept.	2,820.31	5,265.42	15,236.91
Oct.	1,289.93	538.89	17,551.91
Nov.	2,663.53	788.47	19,426.98

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, Dec.1	2,069,949.91
Runs from wells	549,844.44
Other receipts	475,162.23
Regular deliveries	628,747.63
Other deliveries	446,356.64

The amount of Illinois oil run by the Tidewater Pipe Co. in November was 36,488.44 bbls. Deliveries were 73,942.24 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

1927—	Runs	Deliveries
November	605,621.14	418,186.06
December	677,331.25	397,170.07
1928—		
January	561,759.57	434,147.01
February	573,619.78	456,217.31
March	725,250.82	520,596.69
April	526,013.13	446,282.44
May	632,968.64	522,940.51
June	608,552.49	625,087.31
July	612,286.49	565,678.37
August	639,074.85	671,864.65
September	570,307.91	737,293.50
October	626,147.64	626,290.40
November	576,332.88	702,589.91

Tidewater Pipe Co., Ltd., also delivered in September 261,905.21 bbls. Oklahoma oil.

AVERAGE DAILY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF COAST PORTS

Average bbls. per day—	ATLANTIC PORTS: Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS: Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total all ports
May	19,355	5,387	19,581	16,419	4,774	65,516	.....	.....	.....	.....	.....	65,516
June	11,800	.....	23,367	19,700	9,000	63,567	.....	.....	.....	.....	.....	63,567
July	19,807	2,903	8,774	20,419	2,452	54,355	.....	.....	.....	.....	.....	54,355
August	18,161	3,613	27,774	17,677	2,419	69,645	.....	.....	.....	806	806	70,451
September	11,100	.....	18,967	38,200	6,700	74,967	.....	.....	.....	.....	.....	74,967
October	17,323	.....	11,807	6,483	.....	.....	.....	.....	.....	.....	.....	35,613

AVERAGE DAILY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

Average bbls. per day—	ATLANTIC PORTS: Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS: Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total all ports
May	28,000	7,033	107,484	32,129	21,936	196,581	3,871	24,032	.....	1,904	29,807	226,388
June	24,900	12,233	119,867	41,667	19,300	217,967	1,833	15,567	2,167	.....	19,567	237,534
July	23,484	14,548	111,903	37,678	21,452	209,065	9,355	25,000	.....	774	35,129	244,194
August	26,290	16,323	122,226	21,613	7,194	193,645	.....	38,677	.....	613	39,290	232,935
September	22,933	19,100	110,467	30,700	14,333	197,533	6,367	41,300	6,333	1,667	55,667	253,200
October	20,161	16,839	128,452	27,710	7,098	200,258	.....	32,226	3,065	1,612	36,903	237,161

GROSS PRODUCTION IN UNITED STATES FOR 12 MONTHS

(In barrels of 42 gallons.)

		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mountains	Eastern Fields	Total
November:	Month	18,516,467	23,083,380	18,628,290	3,313,650	2,906,760	1,956,960	2,234,730	3,302,500	73,942,737
	Daily average	617,216	769,446	620,943	110,455	98,892	65,232	74,491	110,083	2,464,758
December:	Month	18,938,823	22,208,417	19,340,000	3,427,174	2,962,750	1,927,148	2,400,578	3,219,900	74,934,790
	Daily average	610,930	716,400	640,000	110,554	95,576	62,166	77,438	103,868	2,416,926
January:	Month	19,028,228	20,978,320	20,024,981	3,319,325	2,791,922	1,805,015	2,429,375	3,133,000	73,510,156
	Daily average	613,814	676,720	645,967	107,075	90,061	58,226	78,367	101,064	2,371,296
February:	Month	18,038,459	19,294,426	19,645,488	3,079,587	2,571,575	1,765,606	2,230,887	3,166,000	69,786,228
	Daily average	622,016	665,324	677,431	106,203	88,675	60,676	76,927	109,173	2,406,425
March:	Month	19,118,320	20,162,524	21,466,632	3,379,031	2,687,948	1,871,158	2,401,911	3,522,000	74,609,524
	Daily average	616,720	650,404	692,472	109,001	86,708	60,860	77,481	113,613	2,406,759
April:	Month	18,280,729	19,096,920	21,845,428	3,412,260	2,472,600	1,915,020	2,370,810	3,231,000	72,624,767
	Daily average	609,357	636,564	728,180	113,742	82,420	63,835	79,027	107,700	2,420,826
May:	Month	19,331,856	19,443,355	21,191,561	3,367,809	2,843,847	1,926,036	2,525,043	3,619,000	74,248,617
	Daily average	623,609	627,205	683,599	108,639	91,737	62,130	81,458	116,742	2,395,113
June:	Month	19,164,244	18,482,981	19,802,520	3,202,050	3,075,911	2,112,149	2,425,470	3,394,000	71,659,325
	Daily average	638,808	616,099	660,084	106,735	102,530	70,405	80,849	113,133	2,388,644
July:	Month	19,754,458	18,809,498	22,165,335	3,171,548	2,792,139	2,237,738	2,492,586	3,472,000	74,895,302
	Daily average	637,241	606,758	714,688	102,308	90,069	72,185	80,406	112,000	2,416,656
August:	Month	19,444,849	20,840,494	22,201,257	3,147,058	2,711,787	2,221,677	2,561,840	3,571,200	76,700,212
	Daily average	627,255	672,274	716,170	101,518	87,477	71,667	82,640	115,200	2,474,200
September:	Month	18,908,169	22,456,860	21,554,260	3,047,250	2,540,070	1,829,625	2,432,430	3,420,000	76,188,664
	Daily average	630,272	748,562	718,475	101,575	84,669	60,987	81,081	114,000	2,539,621
October:	Month	19,430,992	23,431,071	21,522,029	3,058,660	2,652,484	1,836,192	2,571,822	3,612,000	78,115,250
	Daily average	626,806	755,841	694,259	98,660	85,564	59,232	82,962	116,516	2,519,849
	Total 12 months	227,955,654	248,288,246	249,377,790	38,925,702	33,009,793	23,398,326	29,077,482	40,662,800	891,195,693
	Daily average	622,829	679,383	682,726	106,354	90,191	63,930	79,447	111,100	2,434,961